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Factors contributing to low performance among African American and Hispanic students on the California High School Exit Exam (CAHSEE)

Zelda Brown

The University of San Francisco

FACTORS CONTRIBUTING TO LOW PERFORMANCE AMONG AFRICAN AMERICAN AND HISPANIC STUDENTS ON THE CALIFORNIA HIGH SCHOOL EXIT EXAM (CAHSEE)

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Zelda Brown
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DISSERTATION ABSTRACT

FACTORS CONTRIBUTING TO LOW PERFORMANCE AMONG AFRICAN AMERICAN AND HISPANIC STUDENTS ON THE CALIFORNIA HIGH SCHOOL EXIT EXAM (CAHSEE)

Beginning with the class of 2006, the California Department of Education requires that all students must pass the California high School Exit Exam (CAHSEE) to graduate from a public, California high school. African Americans and Hispanic/Latino students have been overrepresented among those students who either fail the CAHSEE, or among those students who have yet to pass the CAHSEE. The purpose of this study was to examine the influence of five factors (SES, prior test performance, diet quality, opportunity to learn, and stereotype threat) on the lower pass rates on the CAHSEE among African-Americans and Hispanic/Latino students.

The researcher first identified a cohort of students who failed the CAHSEE on their first attempt as 10^{th}-grade students. These students were then divided into two groups as 11^{th}-grade students: those that passed the CAHSEE and those that did not pass the CAHSEE. These two groups were compared with respect to SES, prior test performance, diet quality, and stereotype threat. In addition, student interviews were completed with a subsample of the students.

There were four major findings in the study. First, even though they did not pass the CAHSEE as 10^{th}-grade students, students who passed the CAHSEE as 11^{th}-grade students had higher 10^{th}-grade CAHSEE scores on both the CAHSEE-ELA and

CAHSEE-M than students who did not pass the CAHSEE as 11th-grade students. Second, students who passed the CAHSEE as 11th-grade students had higher 10th-grade California Standards Test scores in English and math than students who did not pass the CAHSEE as 11th-grade students. Third, students who passed the CAHSEE as 11th-grade students were enrolled in more rigorous English courses their first semester as 11th-grade students, although their grades were not appreciably better than those that did not pass as 11-grade students. In math, both those that passed and those that did not pass took similar math courses, but the grades of those that passed the CAHSEE as 11th-grade students were better than those that did not pass as 11th-grade students. Finally, no differences were found between those who passed the CAHSEE as 11th-grade students and those who did not in socioeconomic status, diet, or stereotype threat. Implications of these findings for research and practice are discussed.

This dissertation, written under the direction of the candidate's dissertation committee and approved by the members of the committee, has been presented to and accepted by the Faculty of the School of Education in partial fulfillment of the requirements for the degree of Doctor of Education. The content and research methodologies presented in this work represent the work of the candidate alone.

Zelda Brown	1/20/2011
Candidate	Date

Dissertation Committee

Robert Burns	1/20/2011
Chairperson	

Lanna Andrews	1/20/2011

Caryl Hodges	1/20/2011

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CHAPTER 1

STATEMENT OF THE PROBLEM

There is currently a nationwide mandate in public education to determine if students can demonstrate what they are expected to know upon completion of high school. This national mandate is an attempt to ensure that students graduate from high school with the knowledge and skills needed to do well in a job, college, and other aspects of life (Center on Education Policy, 2005). This mandate often manifests itself in the form of a 'high stakes test' like a high school exit exam (HSEE). A high-stakes test is a standardized test directly linked to selection and/or certification requirements, thus making the consequences of passage or failure on the test much higher than normal testing and generating added importance to performance on the test (Amrein and Berliner, 2003). Typical high-stakes tests include the LSAT (determining admission to Law School), the GRE (determining admission to graduate school), the SAT (determining admission to college), and HSEE's (determining in part, graduation from high school).

HSEEs are generally required per state law, and in almost all instances, students are allowed to take the test multiple times until they pass. Most states have phased in their exit exams, allowing for adequate time to pass between the time they introduce the test and the time they begin withholding diplomas (Center on Education Policy, 2005). Additionally, most states have offered alternate assessments for English language learners and students with disabilities. Students who are most likely to fail HSEEs are those who do not pass on the first attempt and must retake the test.

Making HSEEs part of graduation requirements is not a new phenomenon. In 1978, several states introduced standardized tests that students were required to pass in order to graduate (Jacob & Dee, 2009). Following a "first wave" of HSEEs as a requirement for graduation in 2000, Congress passed No Child Left Behind (NCLB) in 2001. NCLB is legislation designed to make schools more accountable, and a diploma more meaningful. The vehicle for NCLB's initiative is often in the form of a HSEE. So far, at least twenty states have implemented a HSEE, and five more states are planning to phase one in by the end of 2009 (Center on Education, 2004). Pierce (2005) estimated that HSEEs have impacted 7 in 10 public school students and 8 in 10 minority students by 2009.

The HSEE passing rate for students varies from state to state. According to the Center on Educational Policy (July, 2002), the percentage of students who do not pass exit exams on their first attempt ranges from 9% - 69% in mathematics and ranges from 5% – 53% in English/language arts. The pass rates for minority groups are far below state and national averages. African Americans and Hispanics are far less likely to pass on their initial attempt than Whites and Asian Americans (Center on Education Policy, 2002), and their overall pass rates are lower. Passing rates are also lower for poor students, students with disabilities, and English Language Learners (ELL) (Center on Education Policy, 2005). Further, most states with an exit exam report a disparaging discrepancy in passing rates among the various ethnic groups. In Indiana, for example (using 2002 data) 70% of its White students passed both the mathematics and ELA parts of the exit exam, but only 31% of African Americans and 46 % of Hispanics passed the mathematics part and 38% of African Americans and 49% of Hispanics passed the ELA

parts of the exit exam (Center on Education Policy, 2002). In Massachusetts, Asian American students and White American students were about twice as likely as Hispanic students to pass the state math exit exam and about 1.75 times as likely to pass the state math exam on the first attempt (Center on Education Policy, 2005).

California adopted a high school exit exam called the California High School Exit Exam (CAHSEE) in 1999. The CAHSEE is a two-part, criterion-referenced exam that assesses achievement of ninth and tenth grade content standards for English-Language Arts (CAHSEE- ELA) and algebra I content standards for mathematics (CAHSEE-M). State law mandated that all students in a California public high school, beginning with the class of 2006, pass the CAHSEE in order to receive a high school diploma (California Education Code 60851).

Students take the CAHSEE in the 10th grade. If they do not pass one or both of the sections, students can retake the test twice as 11th-grade students and up to five times as 12th-grade students. Students only retake the section or sections failed as 10-grade students. Since 2006, 436,668 students have taken the CAHSEE.

For the class of 2006, the initial CAHSEE pass rate was 65% and the overall passing rate was 93.75%, but the passing rate for African Americans was 80.5% and 86.2% for Hispanics (Becker, Wise, & Watters, 2008). Because these pass rates are based on seniors and exclude students who dropped out prior to 12th grade (Becker, Wise, & Watters, 2008), they overestimate pass rates. The initial pass rate for the class of 2012, who are currently in the tenth grade, has increased from 65% to 69%, but again, African American (52%) and Hispanic (58%) students' initial pass rates are below the overall

state average (Becker, Wise, & Watters, 2008). This underperformance among African Americans and Hispanics/Latinos has created an achievement gap on the CAHSEE.

While existing research (Garcia & Gopal, 2005; Becker, Wise, & Watters, 2008) has documented a clear achievement gap on the CAHSEE, there is little definitive research on potential causes for the achievement disparity. A number of hypothesized factors have been suggested. Lower SES (Dugdale, 1977; Nichols, 2001), lower prior test achievement (Mengesha, 2007; Pierce, 2005; Zau & Betts, 2008), poorer diet quality (Dugdale, 1977; Florence, Asbridge, & Veugelers, 2008), lack of opportunity to learn (De La Cuesta, 2008; Shriberg, 2006), and the negative effect of stereotype threat (Steele & Aronson, 1995; Martin, 2003; Rydell, 2009; Sears, 2007) have all been suggested as possible causes of the achievement gap. Unfortunately, studies have not examined all factors together in a single study with the same sample of students. Consequently, the purpose of this study was to investigate these five factors as potential explanations for the poorer CAHSEE test performance among African-American and Latino students.

Purpose of the Study

The purpose of this ex-post facto study, then, was to examine the influence of five factors (SES, prior test performance, diet quality, opportunity to learn, and stereotype threat) on the lower CAHSEE pass rates among African-American and Hispanic/Latino students. This study investigated the extent to which these factors influenced African-American and Hispanic/Latino performance on the CAHSEE.

Data were collected during the 2009-2010 academic year, when the American and Hispanic students were 12th graders. These students had failed the CAHSEE as 10th-grade students in 2007-2008, and the data obtained from the district in 2009-2010 were for the 2007-2008 and 2008-2009 academic years; the data obtained by the researcher were from the 2009-2010 academic year, when the students were 12th graders. Two groups of 11th-grade students (2008-2009 academic year) were compared. One group was composed of students who had failed both attempts at the CAHSEE their junior year and the second group was composed of students who had passed either their first or second attempt their junior year. Thus, both groups had failed the CAHSS as 10th-grade students, but one group was successful while the other group was not successful in passing the CAHSEE as 11th-grade students. It was thought that differences between the two groups might suggest which factors contributed to passing and non-passing performance on the CAHSEE as 11th graders.

Data in this ex post facto (Krathwohl, 2009) study were collected from four sources: student records, two student surveys, and student interviews. Measures of student SES, prior test performance, and opportunity to learn were obtained from student records; measures of diet and stereotype threat were administered to students as two

student surveys; and student interviews were collected on a sub-sample of those students completing the surveys. In total, 32 students participated in the study.

Significance of the Study

This study was significant for several reasons. First, there has been little research on factors contributing to low performance on the CAHSEE for African-American and Hispanic/Latino students and even fewer studies have attempted to rank order a set of potential causes. As with most educational phenomena, however, there is usually more than one casual agent and it is important to study many if not all the suspected factors together.

Second, it is equally important to understand why students, especially African-Americans and Hispanics/Latinos, are failing the CAHSEE. Becker, Wise, & Watters (2008), Center on Education Policy (2003), and the California Department of Education (2006) all recommend that California, and other states with HSEEs, investigate why these students persistently fail. Understanding the factors that influence or contribute to this achievement gap will inform remediation and preparation.

Third, most educators, administrators, and parents agree that funding for CAHSEE remediation is necessary. The question or concern for most policymakers and districts is when and how to administer the remediation. Zau and Betts (2008) argue that since the CAHSEE is roughly comparable to eighth grade mathematics and tenth grade ELA, then any intervention should be close to the grades in which these skills are being taught. Becker, Wise, and Watters, an independent CAHSEE evaluator commissioned by the California Department of Education (CDE), recommends that California seek ways to encourage students who do not pass in four years to continue their studies. Becker, Wise,

and Watters (2008) further recommends that these students should be studied to identify programs or instructional strategies that help them succeed. Investigating the influence of likely factors contributing to the performance of African American and Hispanic/Latino students may provide information to help districts and policymakers determine how to target their interventions.

Finally, the California high school educational community does not provide much in the way of thematic or systematic remediation or intervention for students who are traditionally at risk for failing one or both parts of the CAHSEE. Districts decide for themselves how they will administer both intervention and remediation. Results from this study may help districts determine where to target their interventions to help students be successful on the CAHSEE, especially for those students who are traditionally at risk for failing. The ultimate goal is to understand how the factors studied in this dissertation collectively combine to influence student performance on the CAHSEE, as this knowledge will empower policymakers, teachers, principals, parents, and other stakeholders to better prepare students who are at risk for failing the CAHSEE.

Theoretical Rationale

The theoretical framework for this study was centered on the theory of human ecology (Bronfenbrenner, 1979). Human ecology attempts to explain the differences in individuals' knowledge, development, and competencies through the support and guidance received from the societal structures in which they live. These structures operate within a system called human ecology (Ahuja, 2004-05). Understanding the interactions of these systems is important to understanding how children develop and what factors contribute to success and failure (Ahuja, 2004-05).

According to human ecology theory, the individual and the environment are interconnected in an interactive process of mutual influence and change. During this interactive process, the natural and human-created environments affect individual behavior simultaneously the individual behavior influences the environment (Bronfenbrenner, 1979). Human development is thought to be shaped by this constant interaction between individuals and their environment.

Bronfenbrenner, the foremost authority on and major contributor to human ecology theory, has identified four different human ecology systems that influence human behavior. Each of these four systems contains roles, norms, and rules that can shape and modify human development; they encompass the totality of human interactions. These increasingly large systems are microsystems, mesosystems, exosystems, and macrosystems (Bronfenbrenner, 1979; Ahuja, 2004-05).

The microsystem includes the family, the classroom, or any system in the immediate environment in which a person is operating. Bronfenbrenner believes the immediacy and proximity of the microsystem makes this the most important system of

human ecology. It is in the microsystem that an individual's perception of himself and the world develops over time. A student's socioeconomic status (SES) and diet are part of the microsystem.

The mesosystem is the interaction between two microsystems, such as home and school. In this system, children begin to apply what they learn at home to school and vice versa. Due to the interactions between home and school in the mesosystem, parent-teacher communication, for example, is important. Factors that can influence CAHSEE success, such as prior test performance and opportunity to learn, are affected in this system. Student curricular programs, for example, determine what courses the student can take and what opportunities are available for learning. Likewise, the educational history of a student, even at the elementary level, moderates success on exams, especially standardized exams (prior achievement). Students who have exhibit poor prior achievement performance may be assigned sub-standard classes, especially if there is little or no parental contact between the parents and the school. Consequently, the child's opportunity to learn and his prior achievement may be adversely affected.

The exosystem is an external environment that indirectly affects the child's development; it is also the first layer of the environment in which there is little or no direct involvement. However, in the exosystem children are affected indirectly through such settings as a parent's workplace, children's peer group, or caregiver's family situation (Fannin, 1987). SES is also affected in the exosystem, as it is directly linked to family income.

The macrosystem is the larger cultural context. In this system youth begin to identify with their culture and interact with cultures around them. The macrosystem is

where stereotype threat takes shape in the child's mind, as it is here where children begin to develop an opinion of how the world perceives them and their race. With their perception of identity mentally well-formed, students with negative perceptions of how others perceive them and their race are primed to be affected by a stereotype threat.

As one example, Rydell (2009) conducted a study to determine how women would respond on a mathematics test if first primed by a stereotype idea. One group of women was exposed to the negative stereotype idea that men are better than women in math while a second group was not exposed to any stereotype about their group. A third group of women was exposed to the positive stereotype situation that college students were better at math than non-college students, and a fourth group of women was exposed to both the negative and positive stereotype situations. Performance on a test showed that the women who were exposed to the negative stereotype were the only ones to perform worse.

Human development is complex, and human ecologists argue that development needs to be examined from a holistic perspective (Bronfenbrenner, 1979). Understanding the factors that either contributes to or influence the CAHSEE achievement gap among ethnicities is also complex. Using human ecology theory to conceptualize student achievement performance, it is clear that students and their environments are inextricably linked and that factors that could influence student performance should be examined collectively. There needs to be more research that examines the saliency and importance of possible factors that affect student test performance. The current study will collectively examine five factors that could possibly influence performance on the CAHSEE from the four systems of human ecology theory.

Background and Need

In 1978, several states introduced standardized tests that students were required to pass in order to graduate (Jacob & Dee, 2009). These early testing programs have led to the 'high stakes tests' today. The CAHSEE and most other current HSEEs have all been mandated by standards-based reform in general (Center on Education Policy, 2005), and NCLB (2001) specifically. The hope has been that HSEEs will ensure that students actually acquire what they are expected to learn in high school, and that a high school diploma will therefore have meaning. A meaningful diploma, by definition, indicates that students graduate from high school with the knowledge and skills needed to do well in a job, college, and other aspects of life (Center on Education Policy, 2005; Popham, 1981).

Each state's HSEE is different. States create and set forth their own purpose and educational requirements for its exit exam. These exit exams are generally grouped into three major categories (Center on Education Policy, 2004): a) Minimum Competency Exams (MCEs) , which generally focus on basic skills below the high school level, b) Standards-Based Exams (SBEs), which are aligned with the state standards and are generally targeted at the high school level, and c) End of Course Exams (EOCs), which are tied to the content of specific courses at the high school level and are usually standards-based. The one commonality that these exit exams share is that each determines whether or not a student graduates from high school. The usefulness associated with HSEEs is controversial at best (Center on Education Policy, 2007; Viadero, 2009).

Part of the controversy with HSEEs is the concern over higher dropout rates among all high school students in general, and among poor and minority students

specifically. High school students who fail to pass an exit exam and thus do not receive a high school diploma face dire consequences. Bridgeland, Dilulio & Morison (2006), recently outlined some startling statistics about high school dropouts. First, high school dropouts are more likely than high school graduates to be unemployed, in poor health, living in poverty, on public assistance, and single parents with children. Second, high school dropouts earn $9,200 less per year than high school graduates, and more than $1 million less over a lifetime. Third, high school dropouts are more than eight times as likely to be in jail or prison as high school graduates. Fourth, high school dropouts are four times less likely to volunteer than high school graduates, and twice less likely to vote or participate in community projects; they represent only 3% of the citizens who are active in the political process. Fifth, a 10% increase in high school graduation rates would reduce murder rates by 20%. Finally, the government would reap $45 billion in extra tax revenues and reduced costs in public health, crime and welfare payments if the number of high school dropouts among 20-year olds (which is more than 700,000 individuals today) in the United States were cut in half . These consequences for high school dropouts are discouraging and require the full attention of educators.

The HSEE passing rate for high school students varies from state to state. According to the Center on Education Policy (July, 2002), the percentage of students who do not pass exit exams on their first attempt range from 9% - 69% in mathematics and 5% – 53% in English/language arts. The pass rates for minority groups are far below state and national averages. African Americans and Hispanics are less likely to pass on their initial attempt than Whites and Asian Americans (Center on Education Policy, 2002). Passing rates are also lower for poor students, students with disabilities, and English

Language Learners (ELL) (Center on Education Policy, 2005). According to the Children's Defense Fund (2004), minority students are also more likely to perform poorly on tests such as high school exit exams for reasons unrelated to their actual ability. Further, most states with an exit exam report a discrepancy in pass rates among the various ethnic groups. In Indiana, for example (using 2002 data), 70% of its White students passed both the mathematics and ELA parts of the exit exam, but only 31% – 38% of African Americans passed, while 46% – 49% of Hispanic/Latinos passed both the mathematics and ELA parts of the exit exam (Center on Education Policy, 2002). In Massachusetts, Asian American students and White American students are about twice as likely as Hispanic/Latino students to pass the state math exit exam on the first attempt. Likewise, Asian American students and White American students are 1.75 times as likely as African American students to pass the state math exam on the first attempt (Center on Education Policy, 2005).

Amrein and Berliner (2002), the Center on Education Policy (2002), and Warren and Edwards (2003) found that high school exit exams are more prevalent in states with higher percentages of African-American and Hispanic/Latino students, as well as states with the greatest degrees of poverty. Historically, minority and poor students are less likely to pass high school exit exams than their counterparts. This trend does not offer a promising picture for closing the achievement gap and increasing the high school graduation rates, especially for poor and minority students.

The class of 2006 was the first class of California high school students affected by California Education Code 60581, the bill which requires students pass the CAHSEE as part of a graduation requirement. Since 2006, 848,335 students have taken the CAHSEE,

and 73,859 have failed either one or both parts of the test. This failure rate prompted the passage of Assembly Bill 128 (AB 128) and Assembly Bill 347 (AB 347). The California Legislature drafted these bills to assist students who either did not pass the CAHSEE or students who were in danger of not passing the CAHSEE through remediation.

California's graduation rates closely mirror national graduation rates. The overall high school graduation rate in California has gradually increased from 64% in 1972 to 71% in 2002. The overall national high school graduation rate is estimated to be 71% in 2002, up from 64% in 1992 (NCES, 2008). For California minorities, the high school graduation rate is significantly below the overall California high school graduation rate. In 2000, 2001, 2002, and 2003 the high school graduation rates for minorities were 57.4%, 57.1%, 58.4%, and 58.6% respectively, while the overall high school graduation rates for California for the same years were 68.7%, 68.9%, 69.6%, and 69.8% respectively (WestEd, 2004). In 2004, the high school graduation rate in California for minorities was approximately 58% (The Campaign for College Opportunity, 2007), and the overall high school graduation rate for 2004 was 71%. The high school graduation rates for California's minorities consistently demonstrate a state-wide ethnic graduation gap over time.

For California, a troubling aspect of the state-wide ethnic gap in high school graduation rates is that minorities have less than a 55% chance of graduating in three of California's largest urban districts (WestEd, 2004). Further, if minorities continue to underperform at the current rates, the implications for California are grim. First, California's population is expected to grow to 43 million by 2020 and to 55 million by 2050, with most of the growth attributed to minority populations (The Campaign for

College Opportunity, 2007). Second, African Americans have estimated high school graduation rates that are 12% to 19% lower than estimated high school graduation rates for Whites. Third, in terms of college preparedness, only 25% of African Americans in California are prepared for college, and of that 25% only 19% will reach a four-year university (The Campaign for College Opportunity, 2007). Fourth, an African American in California who graduates from high school has an estimated lifetime earnings of 1.6 million dollars; but an African American who does not graduate from high school, has an estimated lifetime earnings of four hundred forty-one thousand dollars (The Campaign for College Opportunity, 2007). Finally, and most importantly, for every dollar California spends to increase the number of baccalaureate degrees for all Californians, the state gets three dollars in net return on that investment (The Campaign for College Opportunity, 2007).

Hispanic/Latinos are another minority population in California that has lower CAHSEE pass rates and, consequently, lower high school graduation rates. Currently, Hispanic/Latinos represent approximately 48% of California's public school enrollment. The Public Policy Institute of California projects that by 2020, Hispanic/Latinos will be the largest racial/ethnic group in California, but the least educated (Zau & Betts, 2008). Although educational attainment levels are expected to continually rise in California, Hispanics/Latinos' educational attainment levels are not projected to keep pace with whites and Asians.

A number of studies have attempted to explain the performance gap among minorities on HSEEs, including the CAHSEE. The Human Resources Research Organization (Becker, Wise, & Watters), an independent organization commissioned by

the state of California to conduct a multi-year evaluation of the impact of the CAHSEE, found the following: a) graduation rates declined by approximately four percentage points for the class of 2006, b) high school dropout rates increased, and c) achievement gaps for low-income and racial/ethnic minority students persist and these groups tend to be clustered in low-performing schools (Becker, Wise, & Watters, 2008).

Despite this general research, there are few studies that have examined specific factors as causes of this underperformance and fewer still have looked at multiple factors together. Five such factors, specifically the ones examined in this dissertation, are SES (Byrd, 1997; Dugdale, 1977; Nichols, 2003), prior test performance (Mengesha, 2006; Pierce, 2005), diet quality (Dugdale, 1977; Florence, Asbridge, & Veugelers, 2008), opportunity to learn (De La Cuesta, 2008; Shriberg 2006), and stereotype threat (Aronson & Steele, 1995; Ryan and Ryan, 2005; Rydell, 2008; Sears, 2007). Each factor is briefly discussed in the ensuing paragraphs.

Several studies suggest that SES is an important factor influencing student performance on the CAHSEE. These studies show a positive correlation between poverty (SES) and school performance (Byrd, 1997; Dugdale, 1977; Nichols, 2003), and confirm a strong positive relationship between SES and school performance. Due to the relevant influence SES has on school performance, this study will also examine its influence on the performance of African American and Hispanic/Latino students.

Another factor that could possibly influence or contribute to low performance on the CAHSEE is prior test performance. Several studies have examined the correlation between prior test performance and performance on the CAHSEE. Pierce (2005) found moderate to strong correlations between the CAHSEE and the California Standards Test

in 7th-grade mathematics scores and Algebra I scores for minority subgroups and for all students inclusive. Mengesha (2006) found moderate correlations between the CAHSEE and district algebra and geometry tests for all students, although the correlations were small within the African American and Latino groups, perhaps caused by reduced variability in test scores. Finally, Zau and Betts (2007) found strong correlations between the CAHSEE-M, taken in grade ten, and 4th-grade math test scores and academic grade point average. Further, the researchers found that ninth-grade academic grade point average was the strongest predictor of 10th-grade performance on the CAHSEE.

These studies suggest that prior test performance, as measured by achievement test scores and GPA, is an obvious but important factor influencing how students perform on the CAHSEE. It is hard to imagine how prior performance would not be important. Students with a history of low academic performance would be unlikely to be motivated to do well in yet another testing situation.

It has also been suggested that diet quality may possibly influence performance on a high stakes, standardized exam like the CAHSEE. Florence, Asbridge, and Veugelers (2008) examined the association between diet quality and academic performance in a sample of 5,200 5th-grade students in Nova Scotia, Canada and found a positive association between diet quality and academic performance. Students with decreased overall diet quality were significantly more likely to perform poorly, while children attending better schools and living in wealthy neighborhoods performed better. Similarly, Dugdale (1977), as early as 1977, found a strong association between the interaction effect of nutritional and SES conditions and poor school performance in Malaysian students. These studies suggest that poor nutrition is associated with poor school

performance, but whether or not there is a casual connection between poor diet and poor academic performance is not clear.

Opportunity to learn has not received much attention among researchers, yet the lack of opportunity could contribute to poor test performance (Shriberg, 2006). Opportunity to learn can be defined many ways, but is often operationalized as courses taken. Shriberg (2006) hypothesized that 10th-grade at-risk students (primarily African Americans and Hispanics/Latinos) taking the Massachusetts Comprehensive Assessment System (MCAS) would be underrepresented in courses predictive of higher MCAS performance and overrepresented in courses predictive of lower MCAS performance. The hypothesis was confirmed. Shriberg found a lower percentage of at-risk students and a higher percentage of non at-risk students enrolled in courses predictive of passing the MCAS and the opposite for courses predictive of failing the MCAS.

Pierce (2005) and Mengesha (2006) both conducted studies examining the correlations between prior math classes taken and CAHSEE-M performance. Both researchers found positive correlations between those students who had taken geometry prior to taking the CAHSEE and success on the CAHSEE-M. These results seem to indicate that the number of courses taken and the type of courses taken prior to the CAHSEE can influence performance.

A final factor that could influence test performance for African Americans and Hispanic/Latinos is stereotype threat. Stereotype threat is the fear minorities experience of confirming a negative stereotype about their race. There is no direct measure for its presence, yet students who are under a stereotype threat are thought to be cognitively impaired by perceiving the testing situation as one where their performance may

contribute to a negative racial stereotype (Martin, 2003; Rydell, 2009; Sears, 2007; Steele & Aronson, 1995). Steele and Aronson (1995) have argued that stereotype threat is an explanation for African American and Hispanic/Latino poor test performance, especially on high stakes tests. According to their theory, minority students in testing situations will perform less well because of the anxiety and fear experienced due to stereotype threat.

Steele and Aronson (1995) measured the impact of stereotype threat on African American students taking the verbal GRE test. To create the threat condition, a group of African American students, matched on SAT scores with White students, were told that the verbal GRE test was a measure of their underlying intellectual ability. The result was that the African American students performed less well than their White counterparts. When the threat condition was removed (the students were told during the same experiment that the test was simply a problem-solving exercise and not a diagnostic test), the African American students performed equally as well as their White counterpart. Martin (2003) found comparable results in a similar study of Hispanics. When Hispanic women were subjected to a threat situation, they performed less well than other participants; the same group of women performed equally as well as other participants under a non-threat situation.

In summary, research about the low performance of African Americans and Hispanic/Latinos on the California High School Exit Exam (CAHSEE) is scarce. Studies that have examined this phenomenon focused on prior performance on standardized tests as an explanation for African American or Hispanic/Latino low performance (Mengesha, 2006; Pierce, 2005; Zau & Betts, 2008). No study took a comprehensive approach to examining why African Americans and Hispanic/Latinos consistently underperform on

the CAHSEE. The current study will examine five factors (SES, prior test performance, diet quality, opportunity to learn, and stereotype threat) thought to influence the performance of African Americans and Hispanic/Latinos on the CAHSEE.

Research Questions

This study proposes to investigate the following research questions:

1. Are there differences in socioeconomic status between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?
2. Are there differences in prior test performance between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?
3. Are there differences in the diet quality between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?
4. Are there differences in opportunity to learn between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?
5. Are there differences in stereotype threat between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?

Definition of Terms

The key terms for this study are defined below.

At-risk students: Students from populations that traditionally have a higher than average failure rate on standardized exams.

Diet Quality: A student's intake of foods from the recommended food groups (Asbridge, Florence, & Veugelers, 2008).

Human Ecology Theory: Developed by Bronfenbrenner (1979), human ecology theory defines four interacting systems. The *microsystem* is the system closest to the individual--it is the family, classroom, or structures in the immediate environment of the individual. The *exosystem* is external to the individual and one in which the individual is only indirectly related, such as a parent's workplace. The *mesosystem* is that system defined as two microsystems interacting, such as the connection between a child's home and school. The macrosystem is the larger cultural context experienced by the individual.

Opportunity to Learn: Courses associated with passing a standardized exam that are taken by a student prior to taking the CAHSEE.

Prior Test Performance: Student test performance on the 9th-grade Standardized Testing and Reporting Results (STAR) in math and English/language arts.

Socioeconomic Status (SES): A composite measure of family size, parental income, and parental educational level.

Stereotype Threat: The fear and or anxiety created when an individual is placed in a situation at risk of confirming, as self-characteristic, a negative stereotype about one's group (Steele & Aronson, 1995).

CHAPTER TWO

REVIEW OF THE LITERATURE

This chapter is organized into four sections. The first section presents background information on High School Exit Exams (HSEEs). The second section then presents an overview of the California High School Exit Exam (CAHSEE). The third and final section summarizes research findings on five potential causes of low performance by African American and Hispanic/Latino students on the CAHSEE: SES, prior test performance, diet, opportunity to learn, and stereotype threat. A summary concludes the chapter.

High School Exit Exams

Opponents of high school exit exams express a wide-range of concerns. Some argue that the standards on the exam are too high for the average student to pass. Others argue that many students fail the exam because they have not had the proper opportunity to learn the material that the exam assesses. Ananda and Rabinowitz (2000) argue that this type of test reduces a teacher's ability to present information creatively, reduces student group work, and hinders students who excel in vocational classes like machine shop, crafting and building.

The Center on Education Policy (2002) identified other challenges states with high school exit exams face. First, states grapple with determining a cutoff score that separates students who pass from students who do not pass. The state-defined cutoff score has to be high enough to ensure that those who pass have met the standards that the exam purports, and at the same time, the cutoff score has to be reasonable enough to not exclude a student who is truly at the same achievement level as other students who do

pass. States seek to avoid having a large number of students who are functioning at a proficient level in the classroom fail their state exit exams.

A second challenge states with exit exams face is fairness. Fairness is defined as providing all students with an adequate opportunity to learn the material the exam assesses. States must ensure that all students do receive the full range of instruction as well instructional services throughout their entire schooling prior to testing. Garcia and Gopal (2003) found that high school exit exams may lead to a two-tiered curricular system, one for students who pass and another one for students who fail the exam. Students who pass these high school exit exams generally receive more rigorous academic instruction whereas students who do not pass the high school exit exam receive some form of remediation, typically a review of basic skills. According to Oakes, Gamoran, and Page (1992), English Language Learners (ELLs) do not have equal access to rigorous curricular content standards. In addition to ELLs not having access to rigorous content standards, the Education Trust-West (2006) found that children of color and poor children get less of everything that research says makes a difference in public education. These instructional disparities among the ethnic groups may exacerbate the achievement gap on high school exit exams.

A third challenge that states with high school exit exams face is what to do with students who do not pass the exit exam. Do states provide these students with an alternative diploma, or do these states simply refer them to adult education classes in order to obtain a GED? Pressure from parents, policymakers, and students have forced some states to contemplate another method of determining if a student has learned what is expected upon graduating from high school. Testing experts also argue that states should

not use a single test score to determine whether a student will graduate. Instead, testing experts suggest that states should offer students multiple ways to demonstrate competency (Center on Education Policy, 2002). Several states have already put in place extra policies, exceptions for special cases, or alternative paths to graduation for students who do not pass their high school exit exams after repeated attempts.

Despite the challenges and opposition that high school exit exams face, there are proponents for and supporters of such high-stakes exams. There are numerous reasons why the supporters and proponents support high school exit exams. The most common reason for their support is to ensure that a diploma "means something." In a 2002 poll by Public Agenda, more than 7 in 10 employers and professors said that the high school graduates they see have only fair or poor skills in grammar, spelling, mathematics, and writing (Center on Education Policy, 2005). In addition to Public Agenda's poll, another poll of year 2000 high school graduates by the Southern Regional Education Board (2002) found that 74% of these graduates agreed that they should have worked harder in high school and 66% commented that their high school should have required them to meet higher academic standards (Bottoms, 2002). Supporters of high school exit exams believe that they motivate students to work harder and focus more on learning, and they challenge districts to adopt higher standards for students. Supporters also generally hope that high school exit exams will motivate overall improvement of public education.

The California High School Exit Exam

As is the case with most states, California deemed it necessary to adopt a competency exam for high school students in order to bolster accountability in public education. In California, accountability for high school students is ensuring that they have

a basic level of competency in reading, writing, and mathematics upon completion of high school. Therefore, in 1999, the California state assembly passed legislation (SB-2X) that requires students to pass an exam in order to earn a high school diploma. According to the California Department of Education (CDE, 2001) the purpose its high school exit exam (CAHSEE) is to significantly improve pupil achievement in public high schools and to ensure that pupils who graduate from public high schools can demonstrate grade level competency in reading, writing, and mathematics (CDE: Senate Bill 2, Section 1[b]).

After the adoption of the CAHSEE legislation, California immediately developed the actual exam. Education Code Section 60850 (Chapter 1, statutes of 1999-2000, S. B. 2, O'Connell) authorized the High School Exit Examination Standards Panel, whose members were appointed by the State Superintendent of Public Instruction and approved by the California State Board of Education (2004), to develop the CAHSEE in accordance with state-adopted content standards in Language Arts and mathematics.

The CAHSEE was administered initially in the spring of 2001 to any student in grade nine who volunteered. Initially the class of 2004 was the first class to be tasked with passing the CAHSEE in order to graduate, but in July 2003, the California State Board of Education changed the requirement to the class of 2006. All students take the CAHSEE for the first time in the tenth grade. Students may take the CAHSEE two additional times, if needed, in the eleventh grade and twelfth grade. In addition to the use of the CAHSEE as a graduation requirement, the spring CAHSEE administration will continue to be used in calculating the Academic Performance Index (API) for state

accountability purposes and for Adequate Yearly Progress (AYP) to meet federal No Child Left Behind requirements (CDE, Program Overview, 2009).

The CAHSEE consists of two independent tests that determine mastery of English at the tenth grade level and mathematics at the sixth, seventh and eighth grade levels, depending upon the topic. Both the English Language Arts (ELA) and mathematics tests must meet state-adopted content standards. The ELA test includes vocabulary, decoding, comprehension, and analysis of information and literary texts, and writing, which also covers writing strategies, applications, and the conventions of English. The mathematics test includes statistics, data analysis and probability, number sense, measurement and geometry, mathematical reasoning, and algebra. Students are also asked to demonstrate a strong foundation in working with decimals, fractions, percents, and arithmetic.

According to the Human Resources Research Organization (Becker, Wise, & Watters, 2008), over 90% of first-time seniors in the class of 2008 met the CAHSEE requirement by the end of their senior year, but about forty-six thousand seniors did not. The overall passing rate for all seniors in the class of 2008 was 93.7%. The passing rate for ELL was 73.5%, the passing rate for students with disabilities (SWDs) was 54.5%, the passing rate for African Americans was 80.5%, and the passing rate for Hispanics was 86.2%.

Causes of Low CAHSEE Performance

A variety of causes of African-Americans and Hispanic/Latinos underperformance on the CAHSEE have been suggested in the literature. This section identifies and reviews the research on five factors thought to play a role:

socioeconomic status, prior test performance, diet quality, opportunity to learn, and stereotype threat. Each is discussed in turn.

Socioeconomic Status

Many studies have examined the relationship between socioeconomic status (SES) and school performance (Byrd, 1997; Crosnoe & Huston, 2007; Davis-Kean, 2005; Malecki & Demaray, 2006; Sackett, Kuncel, Arneson, Cooper & Waters, 2009). Most studies have found at least a moderate positive association between SES and school performance. Even in Dugdale's (1977) study that investigated the effect of nutrition on school performance, he found that among the five factors used in his multiple regression, only SES (defined as family size and income, and educational level of parents) was strongly related to performance ($R^2 = .40$).

Nichols' (2003) study of the 2000 (n = 2000), 2001 (n = 2056), and 2002 (n = 2364) Indiana graduating classes further confirmed that SES is positively associated with school performance. In his study, Nichols sought to describe and predict student who had failed to meet Indiana's state graduation requirement of passing the Indiana Graduation Proficiency Exam. Along with SES, Nichols also investigated the influence of prior grade scores on state standardized exams, school attendance, and grade point averages on student performance on the Indiana Graduation Proficiency Exam. Nichols found that for the 2000 and 2002 graduation classes, 25% - 63% of minority students failed to meet minimum graduation competencies, and 70%- 80% of minorities, mainly African American students, failed to meet minimum graduation competencies in mathematics. Equally important is that most of these students (38% - 50%) were lower income (SES) students (defined as those qualifying for lunch supplements) represented the largest

lower-income minority population. Nichols found that lower income students had a greater failure rate, in some cases twice as great, than higher income students. A common theme Nichols discovered was that SES was a predictor of test performance on the Indiana Graduation Proficiency Exam.

The relationship between SES and student test performance is of no surprise to most researchers or to those in education. Due to the significant relationship between the two variables, the current study will examine the influence of SES on African American and Hispanic/Latino students' performance on the CAHSEE.

Prior Test Performance

Research has shown a strong relationship between state and district standardized mathematics exams and the math section of the California High School Exit Exam (CAHSEE-M). According to the California Department of Education (CDE), 72% of the questions on the CAHSEE-M come from the California content standards for seventh grade mathematics. An additional 17% of the CAHSEE-M questions are derived from the California content standards for Algebra I (CDE, 2005). Despite this fact, many students, minorities, and English Language Learners (ELLs) particularly, continue to struggle to meet the CAHSEE-M requirements. Pierce (2005) argued that in order to better prepare students in the inaugural graduating class of the San Diego Unified School District to pass the CAHSEE, district officials and school personnel need to know if district students were being properly prepared.

Pierce (2005) conducted a study to determine both the strength of the relationship between two California standardized exams and the CAHSEE, and to determine how well these exams predicted success on the CAHSEE. The researcher hypothesized that there

would be a strong positive relationship between the California Standards Test in mathematics for grade seven (CST-7M) and the CAHSEE-M. She also hypothesized that there would be a strong positive relationship between the California Standards Test for Algebra I (CST-A) and the CAHSEE-M. To test her hypotheses, Pierce computed two zero order correlations between CST-7M and CST-A scores, and CAHSEE-M scores for sophomores in the 2006 graduating class in the San Diego High School Unified School District. Next, the researcher constructed subsequent regression equations to determine how well the CST-7M and the CST-A predicted success on the CAHSEE-M. Pierce found a strong positive correlation between the CST-7M and the CAHSEE-M ($r = .81$, $n = 412$, $p < .05$), accounting for 65% of the variance in the CAHSEE-M scores. Likewise, Pierce found a moderate correlation between the CST-A and the CAHSEE-M ($r = .49$, $n = 105$, $p<.05$), accounting for 24% of the variance in CAHSEE-M scaled scores.

Pierce found similar results for ELLs using disaggregated ELL data. There was a moderate correlation between the CST-A and the CAHSEE-M ($r = .53$, $n = 99$, $p<.001$), accounting for 28% of the variance in CAHSEE-M scaled scores, and a strong positive correlation between the CST-A and the CAHSEE-7M ($r = .80$, $n = 559$, $p<.001$), accounting for 64% of the variance in CAHSEE-7M scores.

In a similar study of 10^{th}- and 11^{th}-grade students in the Lynwood Unified School District, Mengesha (2007) examined the relationship between student scores on the Kaplan District Test in Algebra I (KDT-Algebra I) and Geometry (KDT-Geometry) for tenth through twelfth grade and their scores on the CAHSEE-M. The Lynwood Unified School district partnered with Kaplan K-12 Learning Services in order to provide additional, high-quality instruction to its students to help them meet the state CAHSEE

requirement. Although the Lynwood district had enlisted Kaplan's services, no data existed regarding whether or not taking the Kaplan courses improved student performance on the CAHSEE. Mengesha found a moderately strong positive correlation between the KDT-Algebra I and CAHSEE-M ($r = .57$, $n = 250$) and a strong positive relationship between the KDT-Geometry and CAHSEE-M ($r = .74$, $n = 250$) for all populations.

Further, using disaggregated gender and ethnic data, Mengesha (2007) found other significant correlations. There was a strong positive relationship between overall KDT-Geometry scores and matched CAHSEE-M scores for males for all populations ($r = .72$, $n = 500$), and a strong positive correlation between overall KDT-Algebra I scores and overall KDT-Geometry scores and matched CAHSEE-M scores for Hispanics, respectively ($r = .83$, $n = 500$; $r = .91$, $n = 500$). Mengesha concluded that the KDT-Algebra I and the KDT-Geometry are both strong indicators of CAHSEE-M success for all populations.

Additional research exists that not only examines correlations between success on district and state standardized mathematics exams and success on the CAHSEE-M, but also the predictive ability of other variables. Zau and Betts (2008), researchers at the Public Policy Institute of California, conducted a study using San Diego Unified School District class of 2006 student data. In their study, which used regression models to predict student passing of both the overall exam the separate mathematics and ELA exams, Zau and Betts found that ninth grade GPA was a strong predictor of passing the CAHSEE by the end of tenth grade. Specifically, Zau and Betts found that an increase in a student's ninth-grade GPA from a D to a C is associated with success on the CAHSEE.

Interestingly and in addition to ninth-grade GPA, Zau and Betts (2008) also found that fourth-grade GPA predicted CAHSEE passage almost as well as ninth-grade GPA. This conclusion is especially meaningful for ELL, as, according to their study, a student who is still an ELL in the ninth grade is less likely than any other student to pass the CAHSEE (Zau & Betts, 2008).

Zau and Betts also found that a student behavior GPA was also a strong indicator of CAHSEE passage years later. A behavior GPA was a composite grade, ranging from 0 to 4, based on teacher observations of student behaviors like how well the student followed directions and did the student begin tasks promptly. The researchers found that a behavior GPA was approximately on the same order of magnitude as an academic GPA (Zau & Betts, 2008). A student with a behavior GPA of a '4' was twice as likely as a student with a '1' behavior GPA to pass the CAHSEE years later (Zau & Betts, 2008).

Diet Quality

In a 2008 study of 5,200 fifth graders in Nova Scotia, Canada, in a district where 98.4% of students attend public school (Canada Statistics, 2001), Florence, Asbridge, and Veugelers (2008) found an association between students' diet quality and their academic performance. The impetus for the researchers' study was to measure the influence of diet quality on the academic performance of children, not just hypothesize that such a relationship exists. Their study went beyond studies that typically focused on diet as being a function of extremely malnourished students only (Taras, 2005), instead conducting a study examining the multidimensional nature of diet (Gerber, 2001). They used a Diet Quality Index-International (DQI-I) to measure student diet quality. The DQI-I is a composite measure of diet quality ascertained from students' responses to a

modified version of the Harvard Youth/Adolescent Food Frequency Questionnaire (YAQ). It is also a validated food frequency questionnaire for grade 5 students. The DQI-I is also preferable to multiple analyses of nutrients and food groups, and it has been demonstrated as an effective means of cross-national comparisons of diet quality (Haines et al., 2003). Scores on the DQI-I range from 0 to 100 with higher scores indicating better diet quality. DQI-I scores were compared to scores from the Healthy Eating Index (HEI), an alternative measure of diet quality which was also ascertained from students' responses to the YAQ.

To test their hypothesis that diet quality is positively associated with student academic performance, the researchers used a multilevel logistic regression model, which accounted for the clustering of students' observations within schools and allowed for the quantification of second-level factors like income (Florence, Asbridge, & Veugelers, 2008). The predictor variables were the DQI-I scores, HEI scores, gender, and other sociodemographic variables. The response variable was academic performance as measured by scores on the provincial standardized literacy assessment. For purposes of analysis and interpretation, DQI-I scores, HEI scores, school neighborhood average income, and fruit and vegetable intake were all divided into tertiles with the third tertile representing the highest score.

The researchers found that students who were in the second DQI-I tertile were 26% less likely to fail the literacy assessment (odds for success ratio = .74), and students in the highest DQI-I tertile were 41% less likely to fail the literacy assessment (odds for success ratio = .59). Also, students in the second and highest DQI-I tertiles had an increased consumption of fruit and vegetables and a lower caloric intake of fat. Even

after adjusting for gender and parental income and education, school neighborhood income, parental marital status, and annual household income(s), students in the second and the highest tertiles were still 18% (odds for success ratio = .82) and 30% (odds for success ratio = .70) less likely to fail the literacy assessment, respectively. In general, the researchers' findings demonstrated an independent association between overall diet quality and student academic performance. Additionally, fruit and vegetable consumption coupled with fat intake were found to be important to student academic performance.

Decades earlier, in a similar study in Malaysia, Dugdale (1977) had found an association between social factors, nutritional factors (diet quality), and student academic performance. Dugdale's study was motivated by an effort to show that nutrition was a causal factor affecting poor school performance. Prior to his study, Dugdale believed that the general consensus was that poor nutrition was simply associated with poor school performance, but not necessarily a cause of poor school performance.

In his study of 263 primary school children from predominantly low-income families in Malaysia, Dugdale constructed a model to examine the relationship between the students' race, sex, type of school attended, nutritional status, score on an IQ test (as measured by the Goodenough-Harris-Draw-a-Man and Draw-a-Woman tests), and scores on a nationwide school examination. Dugdale used multiple linear regressions and variance analysis (as described by Snedccor, 1965) to quantify the relationship between the predictors and the criterion. He found that nutritional status (as defined by the percentage weight-for-age), family size and income, and the educational achievement of each parent accounted for 18% of variance ($R^2 = .18$) in the Goodenough-Harris Draw-a-Man IQ test. Family income was the only single significant factor. The Goodenough-

Harris IQ test, family size and income, weight-for-age (nutritional status), and educational achievement of each parent accounted for 41.5% of the variance ($R^2 = .415$) in school performance (as measured by the National School Examination scores). Dugdale's study did not find nutritional factors alone to be a significant factor, but he did find that Indian children generally tended to have poorer nutrition than either Malay or Chinese children; it was also shown that nutrition played a significant role in the school performance of Indian children.

The Dugdale (1977) and Florence, Asbridge, and Veugelers (2008) studies indicate that diet is associated with school performance. Since neither study was able to assign diet as a casual claim for poor school performance, the impact of diet on school performance remains a topic to be further investigated. Consequently, this study will examine further the influence of diet on CAHSEE performance of African American and Hispanic/Latino students.

Opportunity to Learn

Shriberg (2006) conducted a study of the Massachusetts Comprehensive Assessment System (MCAS) that examined the role of opportunity to learn as a predictor of performance on the MCAS. Shriberg chose to analyze opportunity to learn as a possible predictor for success or failure on the MCAS because this variable is often overlooked in analyses of achievement gaps. Shriberg's research is an attempt to uncover possible explanations for a consistent pattern of minority, lower income, and special education students performing significantly lower on the MCAS compared to white students.

Opportunity to learn, as defined by Shriberg (2006), was the courses a student takes prior to testing. Shriberg tested three hypotheses. His first hypothesis was that at-risk students would be underrepresented in courses predictive of higher MCAS performance and overrepresented in courses predictive of lower MCAS performance. His second hypothesis was that opportunity to learn would be s stronger predictor of success on the MCAS than demographic variables. His third hypothesis was that opportunity would not be equally predictive of success on the MCAS across demographic groups.

In his study of 58,039 students in the 2003 high school graduating class in Massachusetts, Shriberg first placed students into two groups, at-risk and not at-risk, based on previous test results and demographic data. To test his first hypothesis, the researcher grouped the courses into one of three categories: a) predictive of increased likelihood of passing the MCAS, b) predictive of increased likelihood of failing the MCAS, or c) not predictive of passing or failing the MCAS. No courses were nonpredictive; therefore 18 courses, from all courses offered in the district, were placed into one of the first two groups. Shriberg's hypothesis that at-risk students would be underrepresented in courses predictive of higher MCAS performance and overrepresented in courses predictive of lower MCAS performance was supported for seventeen of the eighteen courses examined. A higher percentage of not at-risk students were enrolled in courses that were predictive of increased likelihood of passing the MCAS, and more at-risk students were enrolled in courses that were predictive of an increased likelihood of failing the MCAS (Shriberg, 2003).

To test his second hypothesis that courses taken will be a more powerful predictors of success on the MCAS than demographics, Shriberg used a logistic

regression model with twenty-four independent variables (six demographic variables and eighteen courses) and one binary dependent variable, pass or no pass on the MCAS. The researcher found that the five demographic risk factors alone accounted for 2.4% of the variance, and the courses alone accounted for 3.4% of the variance. The shared variance by the courses and the demographics accounted for an additional 2.5% of the variance. Also, due to the large sample size, all 24 variables in the regression model were statistically significant, but the variables with the largest effects are shown in Table 1.

Students who had taken geometry the same year they took the MCAS, as denoted by the variable 'Geometry this year,' were 2.24 times more likely to pass the MCAS than students who had not taken geometry the same year (β = -.806, log odds = 2.24). Likewise, Shriberg found that the variables 'Algebra II this year' (β = -.950, log odds = 2.58), 'Advanced math next year' (β = -1.050, log odds = 2.86), 'Geometry last year' (β = -.279, log odds = 1.32), and 'U.S. History next year' (β = -.752, log odds = 2.12) were strong predictors of success on the MCAS. These results supported his hypothesis that courses taken (i.e. opportunity to learn) are a more powerful predictor of success or failure on the MCAS than demographics.

Table 1

Variables with the Largest Effect on Passing the MCAS

Variable	Beta weight	Log Odds
Free Lunch	.798	2.22
Africa American	.886	2.43
Latino(a)	.889	2.43
SPED	1.46	4.28
Geometry this year	-.806	2.24
Algebra II this year	-.950	2.58
Integrated math this year	.884	2.42
Algebra I next year	.757	2.13
Advanced math next year	-1.05	2.86
No math next year	.884	2.42
General math last year	.837	2.31

De La Cuesta (2008) also examined the influence of opportunity to learn on test performance. Her study focused on explaining the achievement gap between minority and majority students on the CAHSEE at the Phoenix Arts Charter School. This quasi-experimental study of 59 10-graders found an 18% performance gap between the school's benchmark (100% pass rate) and the current level of performance of tenth graders. Minority students (African American and Hispanic/Latino) and economically disadvantaged students were overwhelmingly represented in the achievement gap.

De La Cuesta was interested in determining whether her prescribed intervention (teacher release time, focused curriculum goals, and resources) would assist those students who failed as well as explain why they had failed. Teacher release time was time provided for teachers to review disaggregated test results, collaborate with the same single-subject teachers, and to incorporate strategies for improving student learning into their teaching. Counselors also participated in this phase of the intervention by monitoring student progress and notified teachers and parents of any deficiencies.

During the focused-curriculum-goals phase of the intervention, teachers assigned students specific, challenging, short-term but achievable goals, based on their CAHSEE test results. These goals were practice problems and tests that were similar to CAHSEE problems. According to Clark and Estes (2002), raising a student's confidence will also raise that student's commitment to performance goals. As an example, if students failed the geometry part of the CAHSEE, then they were given geometry practice problems. This process was repeated until students reached the prescribed benchmark--a passing score on that practice test.

The resources phase of De La Cuesta's intervention was to make sure that students had access to CAHSEE preparation materials, practice booklets, and technology. The researcher believed that missing or faulty processes or inadequate materials often create barriers to closing the achievement gap (Clark & Estes, 2002).

De La Cuesta found that focused curriculum goals (opportunity to learn) were instrumental in increasing the pass rates of students. After teachers completed professional development that focused on designing curriculum that aligned with state content standards, the teachers were better able to assist student learning. After exposure

to state-aligned curricula, the CAHSEE student pass rate increased from 89% (pre-intervention) to 90% (post-intervention) on the ELA section of the CAHSEE. Though the CAHSEE mathematics pass rate remained the same, De La Cuesta found that the percentage of students at the far below basic level in mathematics decreased by 14%. Qualitative teacher interviews revealed that teachers found that ”when using a roadmap for academic success, students’ subject comprehension increased.” (De La Cuesta, 2008, p.78).

Thus, opportunity to learn is an important correlate with both student success on standardized exams and CAHSEE performance, and will be included as a variable in this study.

Stereotype Threat

In a compelling article about minority test performance, Ryan and Ryan (2005) concluded that negative stereotype threats can create a situational pressure that depresses the performance of the targeted group. The researchers argued that differences between Blacks and Whites and males and females on standardized math exams can be attributed, to some degree, to a negative stereotype about their group. Subsequent research (Rydell, 2009; Sears, 2007) has provided evidence for a negative stereotype threat. For example, in a study that examined stereotype threat and performance on a standardized test, Steele and Aronson (1995) found that the Black students did worse than White students when the test was presented as a measure of their verbal ability but did as well as white students when ability was not emphasized.

Ryan and Ryan (2005) also suggested that such stereotype reactions can occur in other groups as well. In a study by Spencer et al. (1999), a stereotype threat depressed

female math performance of both high-achieving and moderate-achieving college women. Four separate experiments revealed that when a group of college women were told, prior to a math test, that men perform better than women on math tests, they performed, on average, less well than men. When these same women were told that the test did not yield gender differences, they performed, on average, as well as men. Walsh, Hickey, and Duffy (1999) conducted a similar study using moderate-achieving college women and found the same results.

In an experimental study of female undergraduates, (57<N<112), Rydell (2008) found that a negative stereotype threat can be diminished if not eliminated by simply offering the individuals in the stereotyped group a positive alternative to the negative stereotype. Rydell's study focused on gender differences in the mathematics domain. Female undergraduates were placed into one of four different groups, each group given different information about the upcoming task prior to being asked to perform difficult math problems. One group of participants was given no information about a positive or negative stereotype about women. The second group of participants was given negative stereotype information about women, being told that men were better at math than women. The third group of participants was given positive stereotype information, being told that college students performed better at math than non-college students. The fourth group of participants was given both the positive and negative stereotype information.

Rydell conducted this same experiment on four occasions with four different samples of female undergraduates. He found that women who were given only the negative stereotype information performed worse than the women in the other three groups. Women who were given both negative and positive stereotype information

identified more with the positive stereotype than they did with the negative stereotype. Rydell concluded that although the activation or awareness of a stereotype is automatic and hard to control, whether or not an individual endorses or believes the stereotype is under the control of the individual. Although the current study will not focus on the impact of stereotype threat between the genders, it will examine the role of stereotype threat os a possible cause of lower minority student performance.

To provide further evidence that stereotype threat can depress test performance, Sears (2007) conducted a study that not only examined the impact of stereotype threat on test performance, but also examined personal characteristics that minorities (African Americans and Hispanic/Latinos) display that predict how they will respond to negative feedback in an ambiguous situation like a standardized exam. Sears' study was intended to help social scientists gain a clearer understanding of minority students' experiences with discrimination and examine the consequences these experiences may have on them (Sears, 2007).

In her study, Sears (2007) hypothesized that the personal characteristics of African Americans and Hispanic/Latino students interact with the context for predicting African American and Hispanic/Latino students' academic achievement. The independent variables in her study were past experiences with discrimination, general attribution style, and racial identity. These variables were used to predict these students' attributions about negative feedback during an ambiguous situation and their subsequent performance on an academic task in a context where stereotypes against their group may be perceived. In the current study, students' feelings about failing the CAHSEE are of

interest, as the researcher is interested in whether or not a stereotype threat will impact their performance.

To examine the consequences that resulted from African American and Hispanic/Latino students' experiences with discrimination, Sears tested the following hypotheses: a) Do students' perceived experiences with discrimination, general attribution style, and racial identity predict their attributions in response to negative feedback received under ambiguous circumstances? And b) Do these personal characteristics (perceived experiences with discrimination, general attribution style, and racial identity) and students' attributions in response to negative feedback predict their performance on academic task in a context where stereotypes against their racial/ethnic group may be salient?

Sixty students (42 African Americans, 17 Hispanic/Latinos, and 1 mixed race) were recruited from both a large public university in central Indiana and a small private college in northern Indiana. The mean age of the students was 21.5 years (range =18 – 44) and varied from college freshman to graduate students. Over 70% of Sear's sample came from a SES below $50,000 per year. Students were placed into small groups of 5 and given 15 verbal questions from the verbal section of a Graduate Record Exam practice test (Educational Testing Service, 1994). They were given up to ten minutes to complete the questions. The next part of the study involved feedback from the students regarding their performance on the verbal test. To test for order effect, half of the group of students completed the procedures in this order: pretest, essay/pictures taken, general attribution questionnaire, demographic questionnaire, feedback on essay, attribution about feedback, racial identity, perceived past experiences with discrimination, and

posttest. The other half of the students completed the procedures in this order: pretest, general attribution questionnaire, essay/pictures taken, perceived discrimination questionnaire, racial identity questionnaire, feedback on essay, and attributions about feedback, demographic sheet and posttest. There were no significant differences between the order of administration of the procedures on students' scores on the questionnaires or the tests (Wilk's Lambda, $F(10, 49) = .76$, $p = .66$.

To measure perception of past discrimination experienced by African Americans and Hispanic/Latinos, Sears used a 14-item, researcher-constructed questionnaire created according to theoretical conceptions of discrimination and from pilot work with minority college students (Taylor et al., 1994; Verkuyen, 1998). Seven of the items on this questionnaire assessed the student's perception of whether or not they had been the victim of discrimination in the past, and the other seven items assessed the degree to which the students believed members of their race have been discriminated against. Sears reported adequate internal consistencies for both subscales scores--$\alpha = .85$ and $\alpha = .84$ for the individual and group scores, respectively. Also, individual and group scores were moderately correlated $r(60) = .44$. This meant that students with higher individual scores reported higher levels of personal discrimination, and students with higher group scores reported higher levels of discrimination against members of their race.

To determine if there were differences between the level of perceived past discrimination (group and individual), attribution style, racial identity, attributions about feedback, and pre and posttest performance between African American and Hispanic/Latino students' scores, Sears calculated a MANOVA. Since the MANOVA found no differences for students' scores on the questionnaires or the tests, the main

analyses combined the two groups (Wilk's Lambda, F (10,48) = 1.10, p = .385). The main analyses were partial correlations to assess the association between students' perceived experiences with discrimination, general attribution style, and racial identity and response to negative feedback and performance on an academic task. These partial correlations controlled for students' family income.

The results were varied. Regarding perceived past discrimination, students' perceived past discrimination against their group correlated negatively with why they believed they received negative feedback on their test (r = -.44). This means that the more discrimination one perceived for one's group, the less likely the student was to attribute the negative feedback to ability. Racial identity correlated with the students' attribution style. The more conformity (r = -.44), dissonance (r = -.49), and immersion (r = -.47) the students experienced, the less control they felt they had over their lives. This suggested that something other than a student's ability was the reason for performance.

Sears constructed an explanatory model for African American and Hispanic/Latino students' performance on the verbal test. In her model, the predictor variables were internal attributions and perceived past discrimination (group and individual), and the control variables were family income and pretest scores. The response variable was posttest scores on the verbal test. Sears found that internal attributions (ability, effort) and students' posttest scores in the stereotype-threat context were negatively correlated r (55) = -.23 (p = .04). This indicated that the more students attributed negative feedback to internal causes like ability, the lower their scores were on the posttest. Also, students' immersion racial identity correlated negatively with students' posttest scores r (55) = -.23 (p = .04). This result indicated that the more students

immersed themselves into their own racial identity, the lower their posttest scores. Even in a follow-up hierarchical regression, both internal attributions and immersion racial identity significantly contributed to the variance in the posttest scores ($F(4,54) = 3.952$, $p = .007$, adjusted $R^2 = .169$). Neither immersion racial identity ($\beta = -.23$, $p = .06$) nor internal attribution of the feedback ($\beta = -.25$, $p = .06$) alone were statistically significant. Sears' study reaffirmed that a stereotype threat can and does depress student performance on a test.

It seems reasonable therefore, that stereotype threat could be an important variable affecting student CAHSEE test performance. This study will include such a measure and examine whether stereotype threat contributes to the underperformance of African American and Hispanic students on the CAHSEE.

Summary

Since the California Department of Education is tasked with preparing all students to not only pass the CAHSEE, but also to succeed beyond high school (Barron & Sanchez, 2007), then understanding African American and Hispanic/Latino low performance on the CAHSEE warrants more research. Educators and policymakers need to understand factors that possibly influence performance on the CAHSEE in order to provide effective interventions for African Americans and Hispanic/Latinos.

Prior research suggests that SES, prior test performance, diet quality, opportunity to learn, and stereotype threat may all be relevant factors influencing performance on standardized tests. It is believed that one or more of these factors also influenced low performance on the CAHSEE for African Americans and Hispanic/Latinos. The current study sought to extend the knowledge prior studies provided about the influence of these

five factors on standardized exams to African Americans and Hispanic/Latinos. Specifically, the current study examined the influence of SES, prior test performance, diet quality, opportunity to learn, and stereotype threat on the low CAHSEE performance of African Americans and Hispanic/Latinos.

CHAPTER THREE

METHODOLOGY

The primary purpose of this study was to examine the influence of a set of five variables on the California High School Exit Exam (CAHSEE) performance of African American and Hispanic/Latino students. Specifically, this study focused on students who failed their first attempt on the CAHSEE, but then either passed or failed the CAHSEE in the eleventh grade. Student records, student surveys, and student interviews were all used to compare the two groups. This chapter describes the research design, participants, instrumentation, and data analysis of this study.

Research Design

This study used an ex post facto design to investigate the influence of 1) SES, 2) prior test performance, 3) diet quality, 4) opportunity to learn, and 5) stereotype threat on the performance of African Americans and Hispanic/Latino students who did not pass the CAHSEE as 10th-grade students. Two 11th-grade comparison groups were formed from this sample of students identified by the school district as having failed the 2007-08 CAHSEE as 10th-grade students. Group one was composed of students who passed the CAHSEE in the 11th grade on their first or second retake, and group two was composed of students who failed the CAHSEE on both attempted retakes in the 11th grade. The researcher collected SES, prior test performance, courses taken (opportunity to learn), and CAHSEE data for each student from the school district. The researcher also administered a diet quality instrument and a perceived discrimination instrument to measure diet quality and stereotype threat when the students were 12th-graders. Follow-

up interviews were conducted with students completing the surveys and who agreed to participate in the interview.

Figure 1 outlines the student design, sample sizes, and year study variables were collected. In the 10th grade, 206 African-American and Hispanic students failed the English/language arts section of the CAHSEE (CAHSEE-ELA), and 130 failed the math section of the CAHSEE (CAHSEE-M). These numbers, obtained from district records, reflect the district population of African American and Hispanic students who failed the CAHSEE as 10th-grade students. In the 11th-grade, for ELA, 63 of the 206 passed on their first retake, and another 19 passed on their second retake. For math, 36 passed on their first retake and another 18 passed on their second retake. Thus, for ELA, of the original 206 students who failed as 10th-grade students, 82 (40%) passed and 124 (60%) failed in two retake attempts as 11th-grade students; for math, of the original 130 who failed as 10th-grade students, 54 (41.5%) passed and 76 (58.5%) failed in two retake attempts as 11th-grade students. Some students failed both sections of the CAHSEE, and some failed one or the other test.

Figure 1 also identifies the study sample. There were 24 students in the ELA sample and 23 students in the math sample. Because 15 students failed both, a total of 32 students participated in the study. In ELA, 8 passed and 16 failed on their two retakes as 11th-grade students; in math, 11 passed and 12 failed in their two retakes as 11th-grade students. The 10th grade mean scores on the CAHSEE-ELA were 326 for the 8 students that eventually passed in the 11th grade, and 312.9 for those that did not pass in the 11th grade. The 10th grade mean scores on the CAHSEE-M were 337.2 for the 11 students that eventually passed in the 11th grade and 326.6 for those that did not pass in the 11th grade.

Thus, even though they did not pass as 10th-grade students, the students that eventually passed as 11th-grade students scored about 11-13 point higher scores on the 10th-grade CAHSEE than those that did not pass in the 11th grade.

Finally, at the bottom of Figure 1, under the year they were obtained, the five variables of the study are identified by number. Note that the student interviews and the diet and stereotype threat surveys were administered when the sample was in the 12th grade.

Participants

Thirty-two students from an accredited public high school in northern California participated in the current study. These were the students who responded and returned parental and student consent forms. As mentioned above, these 32 students had failed the CAHSEE as 10th-grade students and had either passed or failed the CAHSEE during their two retakes as 11th-grade students.

The district, with several high schools, was approximately 5% African American, 44% Hispanic/Latino, 38% White, 7% Asian, 4% Filipino/Pacific-Islander, and 2% other. In 2008, the year the sample was in the 11th grade, the district had a 27% drop out rate. Most graduates attended a local community college; only 36% of the students in the district met the University of California A-G entrance requirements (Ditz, 2008).

10th-grade 2007/08 | 11th-grade 2008/09 | 12th-grade 2009/10

	District Population		Study Sample	
	1st Attempt	2nd Attempt	1st Attempt	2nd Attempt
Pass	63	19	6	2
Fail	143	124	18	16

ELA 206 Fail

	District Population		Study Sample	
	1st Attempt	2nd Attempt	1st Attempt	2nd Attempt

n=24

Pass	36	18	6	5
Fail	94	76	17	12

Math 130 Fail

n=23

Total N=32 (15 failed both math and ELA)

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07 CST Math Score (2) 08 SES (1) 09 Diet Score (3)
07 CST ELA Score (2) 08 Math Course and Grade (4) 09 Stereo Threat Score (5)
08 ELA Course and Grade (4) 09 Interviews (18 of 32)

Figure1. Study design and measures

Human Subjects Consideration

The researcher followed guidelines set by the American Psychological Association (2002) and the Institutional Review Board of the University to obtain permission for this research. Permission to complete the study was obtained in writing from the district superintendent (see Appendix A), and permission to participate in the study was obtained from the students (see Appendix B) and their legal guardians (see Appendix C). The legal guardians and the students were informed, via cover letter, that their participation was voluntary, that all information obtained will be kept confidential and in a secure location, and that information will be reported in a way that identification could not be made.

Instrumentation

Data for this study was obtained from three sources: district records, two student surveys administered by the researcher, and student interviews conducted by the researcher. Each is discussed below.

District Records

Socioeconomic status. This variable was obtained from district records that used the California Department of Education definition to label a student economically disadvantaged. Students labeled as such had parents who had not received a high school diploma, or they were students participating in the free or reduced lunch programs. The variable was dummy coded 1=socioeconomic disadvantage, 0=not socioeconomic disadvantaged.

*Prior test performance***.** The prior test performance variable was obtained from district records. As part of the state testing, students complete a California State

Standards (CST) test in English/language arts (ELA) and in mathematics each year. For this study, the 10th-grade CST scores in ELA and math were used. The 11th-grade CST scores were also obtained.

Opportunity to learn. Two opportunity to learn variables were also obtained from district records. These two variables were the first semester ELA and math courses students took as 11th-grade students and the grade they received in the course. A variety of courses were possible In math, the possible courses were Algebra I, Algebra II, Geometry, Integrated Math, General Mathematics-SDC, and Business Mathematics; in English/language arts, they were English Literature, English Language Arts, Reading-SDC, and ESL. The grades for these courses ranged from A-F, and 'NA,' 'FA,' and 'Credit' were grades that were also awarded. NA denoted a student who failed due to poor attendance, but was meeting all other course requirements. FA denoted a student who failed due to poor attendance and due to not meeting all other course requirements. Credit denoted a student who met the course requirements but received no grade for the course; the credit notation had no impact on the student's GPA.

Student Surveys

Diet quality survey. The diet quality survey was a researcher-modified version of the Diet Quality Index-International (DQI-I) (Florence, Asbridge & Veugelers, 2008) (see Appendix D). The DQI-I assesses the diet quality according to the intake of nutrients associated with chronic disease (Kant, 1996; Haines, et al., 1999), and permits aspects of diet quality related to nutrition to be examined (Kim, et al., 2003). This is a self-reported survey with three major subscales: food variety, food adequacy, and overall food balance. According to a number of researchers, it is a good instrument to measure overall diet

quality based on food group consumption (Kant, 1996; Haines *et. al*. 1999; Gerber *et.al*. 2000; Marshall *et. al*. 2001; Tangney *et. al*. 2001; Weinstein *et. al*. 2004).

To assess food variety in diet, the researcher did not use the variety and adequacy subscales of the DQI-I. Rather, to simplify the explanation of the scale to students, they were simply asked to indicate the number of servings per week of each of the five food groups. Each of the five food group scores ranged from 1 to 7; each of the five scores were summed to create a total score ranging from 5 to 35. The correlations among four of the five subscales ranged from .26 to .58; understandably, the first food group, fruits, correlated zero or negative with the other four scales.

*Perceived discrimination survey***.** The researcher-modified Perceived Discrimination Survey (see Appendix E) is from one used by Sears (2007) designed specifically for her study. Sears' instrument, derived from a theoretical conceptualization of discrimination (Taylor, et al., 1994; Verkuyten, 1998), is based on social psychology research that suggests that the awareness of a stereotype can influence performance, regardless of actual ability, and that perceived discrimination portends a stereotype threat (Martin, 2003; Rydell, 2009). It assesses students' perceptions of whether or not they feel that they or members of their racial/ethnic group have been the victim of discrimination. This phenomenon has been demonstrated in domains ranging from academics, driving cars, and cooking to high-stakes tests.

The items used in the Perceived Discrimination Survey used in this study were a subset used by Sears. Seven of the items used in this study measured threat at the individual level and seven measured threat at the group level. Cronbach's alpha for the first set was .80 and .51 for the second group of items; overall, Cronbach's alpha was .71.

Student Interviews

To measure students' opinions about their experience with the CAHSEE, students were asked eight questions in a structured student interview (see Appendix F). The interviews were recorded because a tape recording is the most reliable way to work with the spoken words of a participant (Seidman, 2006).

Seidman (2006) argues that the best way to capture a group's voice is to have members of that group reconstruct their experience, and then the researcher examines transcripts of those reconstructions for themes. According to Seidman (2006), such phenomenological interviews combine life experiences with focused questions informed by participants' responses to prior questions. This interviewing technique uses primarily open-ended questions that build upon and explore participants' responses. The goal of in-depth, phenomenological interviewing is to have the participant reconstruct her experience within the topic of study (Seidman, 2006).

Time constraints did not allow for such open-ended interviews. Instead, the researcher analyzed the interview data for themes and for student opinions and attitudes about the CAHSEE. The process of labeling the interviews and placing them into categories is called dialectical processing (Seidman, 2006). The researcher also recorded the frequency with which students responded either negatively or positively to a question, and used the frequency of responses to questions as a basis for establishing themes. As an example, 13 of 18 students responded that there was content on the CAHSEE they had never seen before in the classroom, and this became a possible theme that was then explored. Some students were not asked all questions.

Procedures

Early in the spring 2010 semester, the researcher obtained permission from both the participating district and the participants to collect student socioeconomic data, student academic data, to administer the Perceived Discrimination Inventory (see Appendix D), the Diet Quality Index (DQI-I) (see Appendix E), and to conduct student interviews (see Appendix F). With the help of district personnel, all 11th-grade African American and Hispanic students who failed the CAHSEE as 10-graders were identified as being eligible for the study. After identifying participants who were eligible for the study, the researcher requested the high school secretaries to help distribute the parental and student consent forms. After two weeks expired, no student had responded. Therefore, with district approval, the researcher made an appointment with each participating school to meet with the students as a group in order to explain to them the purpose of the study and to encourage participation. Thirty-two students, 14 African Americans and 18 Hispanics/Latinos, eventually responded and participated in the study.

To administer the Perceived Discrimination and the Diet Quality Surveys, the researcher met with the students as a group. During the meeting, the researcher first administered the Diet Quality Survey. The purpose of the questionnaire was explained, and then each question was read while the students wrote their responses. If a student had a question, it was immediately. The researcher than passed out the Perceived Discrimination Survey, and explained its purpose. The students seemed comfortable enough with the Survey, and completed it in the group setting.

A week following the administration of the two Surveys, the researcher returned to the schools to conduct student interviews. Because the researcher was only allowed to

talk to the students during their lunch break only, it was difficult to schedule all the interviews and only 18 of the 32 students were eventually interviewed. To encourage the students to participate in the interview during lunch, the researcher brought lunch for them. All student interviews were tape recorded. When the interviews were completed, a transcriber was hired to produce a transcript of the recordings. With explicit written instructions from the researcher (Seidman, 2006), the transcriber did not refer to any student by name, but she did clarify if a student was a male or female or an African American or a Hispanic/Latino.

Data Analysis

The primary design of this study was to compare two groups of students—those that passed the CAHSEE in 11th-grade and those that did not—on the five variables: socioeconomic status, prior test scores, diet quality, opportunity to learn, and stereotype threat. For each of the variables except opportunity to learn, independent sample t-tests were computed to determine if mean score differences existed between the two groups of students. Opportunity to learn was not measured by a test or scale; rather, the analysis strategy was simply to logically compare the courses and student grades in the two groups. For several research questions, additional comparisons were made between groups defined by gender or ethnicity. The majority of students were interviewed, and their responses were analyzed for any possible themes.

CHAPTER FOUR

RESULTS

The purpose of this study was to investigate the extent to which SES, prior test performance, diet quality, opportunity to learn, and stereotype threat influenced whether or not African Americans or Hispanic/Latinos passed or failed the CAHSEE in the eleventh grade, after failing it one or more times. The results of this study are presented in two sections. The first section presents the district and survey data addressing each of the five research questions. The second section presents the results of the interviews.

District and Survey Data

All analyses in this section compare two groups of students, those that passed the CAHSEE in the 11th grade and those that failed both CAHSEE attempts in the 11th grade. These comparisons are made for two subsamples, those failing the CAHSEE-ELA section and those failing the CAHSEE-M sections of the CAHSEE. For English/language arts (ELA), 8 passed the CAHSEE-ELA section and 16 failed the CAHSEE-ELA section in the 11th grade; for math (M), 11 passed the CAHSEE-M section and 12 failed the CAHSEE-M section in the 11th grade. In the tables below, the two groups are identified as “Passed” and “Failed.” Because the ELA and math samples overlap, and statistical comparisons for ELA and math are not independent, the p-value for statistical significance was set at the more conservative .01 level of significance.

Research Question 1

The first research question examined in this study was ”Are there differences in socioeconomic status between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?” To address research question 1.this question, the SES classification of students was compared between the pass and fail groups for the ELA and math sections of the CAHSEE. Table 2 displays the SES means, standard deviations, and sample sizes for the two groups.

An independent sample t-test between the two groups revealed no statistically significant differences on SES for either the CAHSEE-ELA (t=0, df=22, p=1.0) and the CAHSEE-M (t=1.94, df=10, p=.08, not assuming equal variances).

Table 2

SES Means, Standard Deviations (SD), and Sample Size (N) for Students Who Passed and Failed the CAHSEE in 2008-2009

Test and Group	Mean	SD	N
CAHSEE-ELA			
Passed	1.13	.35	8
Failed	1.13	.34	16
CAHSEE-M			
Passed	1.27	.47	11
Failed	1.0	.00	12

This analysis is hampered by the fact that all but 5 of the 32 students in the sample were classified as economically disadvantaged. Of the 5 who were not classified as economically disadvantaged, two were males who only passed the CAHSEE-M as 10th-grade students but did not pass the CAHSEE-ELA as 11th-grade students, and 3 were female students, two of which only passed the CAHSEE-ELA as 10th-grade students but then passed the CAHSEE-M as 11th-grade students; the final female student had not passed either sections of the CAHSEE as a 10th-grade student and then passed both sections as a 11th-grader.

Research Question 2

The second research question examined in this study was "Are there differences in prior test performance between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?" To address this question, the 10-grade CST ELA and math scores obtained in 2007-2008 were compared between the two groups. Table 3 presents the CST-ELA means, standard deviations, and sample sizes for both groups and Table 4 presents the CST-Math means, standard deviations, and sample sizes.

Table 3

2007-2008 CST-ELA Means, Standard Deviations (SD), and Sample Size (N) for Students Who Passed and Failed the CAHSEE-ELA in 2008-2009

Test and Group CAHSEE-ELA	Mean	SD	N
Passed	309.2	39.8	8
Failed	269.2	25.1	13

Note. There were 3 missing CST-ELA scores for the "Failed" group.

Table 4

2007-2008 CST-Math Means, Standard Deviations (SD), and Sample Sizes (N) for Students Who Passed and Failed the CAHSEE-M in 2008-2009

Test and Group CAHSEE-M	Mean	SD	N
Passed	271.3	26.3	9
Failed	251.0	31.1	10

Note. There are 2 missing CST-M scores in both groups.

An independent samples t-test between the two groups for the CST-ELA scores revealed a statistically significant difference with the "Passed" group showing higher prior tests scores in ELA than the "Failed" group ($t=2.84$, $df=19$, $p=.01$). For the CST-M scores, the difference was not statistically significant although in the same direction as the ELA test ($t=1.53$, df-17, $p=.14$).

The correlation coefficients between the 2007-2008 CST-ELA scores and the 2007-2008 and 2008-2009 CAHSEE-ELA scores were .47 (n=21) and .72 (n=19), respectively. The correlation coefficients for the 2007-2008 CST-M and the 2007-2008 and 2008-2009 CAHSEE-M were .46 (n=19) and .32 (n=16), respectively. These sample sizes are small and only the .72 between 2007-2008 CST-ELA and 2007-2008 CAHSEE-ELA reach statistical significance (p=.001).

Research Question 3

The third research question examined in this study was "Are there differences in diet quality between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?" To address this question, scores from the diet quality survey were compared between the two groups. Table 5 presents the diet quality means, standard deviations, and sample sizes.

Table 5

Diet Quality Means, Standard Deviations (SD), and Sample Sizes (N) for Students Who Passed and Failed the CAHSEE-ELA in 2008-2009

Test and Group	Mean	SD	N
CAHSEE-ELA			
Passed	17.6	7.3	8
Failed	20.5	5.6	16
CAHSEE-M			
Passed	18.6	6.2	11
Failed	18.9	5.2	12

An independent samples t-test revealed no statistically significant differences between the two groups for diet quality for either the CAHSEE-ELA subgroup (t=-1.08, df=22, p=.29) or the CAHSEE-M subgroup (t=-.12, df=21, p=.91.

To determine if there was a difference in diet quality between males and females, the diet quality scores were compared between the 18 males and 14 females. An independent-samples t-test revealed no statistically significant differences in diet quality between males and females (t = -.08, df=30, p = .94).

Research Question 4

The fourth research question examined in this study was "Are there differences in opportunity to learn between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?" To address this question, the English and Math courses students enrolled in their first semester as juniors and semester grades were obtained from district records. Table 6 outlines the English courses taken by students and their grades for those that passed and those that failed the CAHSEE during their junior year; Table 7 does the same thing for math courses.

Courses marked with an asterisk (*) in Tables 6 and 7 indicate that they meet University of California "a-g" content standards. The courses that did not meet the University of California "a-g" standards were support/readiness courses for students who were performing below grade level, English Language Development courses (ELD), English Language Learner courses (ELL), or grade-

Table 6

English Courses and Grades for Students Passing and Failing the CAHSEE in 2008-2009

PASSED (N=8)		FAILED (N-16)	
Course	Grade	Course	Grade
Acad Eng III*	B-	Academic English III*	F
English III*	F	Academic English III*	C
English III*	F	English III*	F
English III*	B	English III*	B
English III*	FA	English III-SDAIE*	B
English III*	C	English III-SDC	D
English III-SDAIE*	FA	English III-SDC	D-
Reading-SDC	B	English III-SDC	C
		English III-RSP	C-
		ELA III	B
		ELD I	A
		Reading/Typing	A-
		Reading/Typing	Credit
		Reading/Typing	NA
		Reading/Typing	B-
		Reading/Typing	C-

Note. Courses marked with an asterisk (*) meet University of California "a-g" content requirements.

Table 7

Math Courses and Grades for Students Passing and Failing the CAHSEE in 2008-2009

PASSED (N=11)		FAILED (N-12)	
Course	Grade	Course	Grade
Algebra II*	F	Algebra I*	F
Algebra II*	A	Algebra I*	B
Algebra I*	C-	Algebra I*	B
Algebra I*	F	Algebra I*	F
Algebra I*	B-	Algebra I*	B-
Algebra I-LEP*	B+	Geometry*	F
Geometry*	F	Geometry*	C-
Integrated Math I*	NA	Integrated Math I*	D
Integrated Math I*	C	Integrated Math I*	F
Business Math	F	Algebra I-SDC	C-
CAHSEE Math	B+	Business Math	FA
		General Math-SDC	D-

Note. Courses marked with an asterisk (*) meet University of California "a-g" content requirements.

- In Table 6 and 7, FA denotes a student who failed a course due to attendance and due to not meeting course requirements.
- NA denotes a student who failed a course due to poor attendance, but was meeting course requirements.
- Credit denotes meeting minimum course requirements only. Such a grade does not impact the student's GPA.

level courses that were not as rigorous as the UC approved courses. The course designations came from the school district.

The University of California requirement standards are subject area requirements that ensure students entering a UC school can participate fully in the first year program at the University in a broad variety of fields of study. Further, these requirements ensure that a student entering a UC school has attained a body of knowledge that will provide breadth and perspective to new, more advanced studies, and that a student has attained essential critical thinking and study skills.

Considering ELA courses first, 7 of the 8 students (87.5%) who passed the CAHSEE-ELA in the 11th-grade were enrolled in English courses meeting the UC standard while only 5 of the 16 students (31%) who failed the CAHSEE-ELA in the 11-grade were in UC standard courses. Those that passed the CAHSEE-ELA had slightly better course performance, although few of the students, either those that passed or those that failed the CAHSEE-ELA, performed well. Of the 8 who passed the CAHSEE, 4 had course grades lower than a "C"; of the 16 that failed the CAHSEE-ELA in 11th-grade, 6 had course grades lower than a "C". It appears opportunity to learn may have played a role in whether students passed or failed the CAHSEE-ELA in the 11th-grade.

A slightly different pattern is seen in the math courses. Of the 11 students who passed CAHSEE-M as 11th-grade students, 9 were in courses designated as meeting the UC standard; for the 12 that did not pass, 9 were enrolled in courses designated as meeting the UC standard. With respect to grades, 5 of the 11 students (45%) who passed received grades lower than a "C" while 9 of the 12 students (75%) who failed received a course grade lower than a "C". Thus, while course taking was similar between the two

groups, grade performance was better for students who passed the CAHSEE-M as 11th-grade students. Like English, grade performance in math was not good in either group.

Overall then, courses that students were enrolled in that were not UC approved courses were ELA courses, ELD courses, General Mathematics, Business Mathematics, and/or Integrated Mathematics. No students in the study were enrolled in Advanced Placement courses, International Baccalaureate courses, accelerated courses or Honors classes with a weighted grade point average courses.

Research Question 5

The fifth research question examined in this study was "Are there differences in stereotype threat between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?" To address this question, stereotype threat scores from the student survey were compared between the two groups. Table 8 presents the stereotype threat means, standard deviations, and sample sizes.

An independent samples t-test revealed no statistically significant differences between the two groups for stereotype threat for either the CAHSEE-ELA subgroup (t=.13, df=22, p=.90) or the CAHSEE-M subgroup (t=-.64, df=22, p=.53). To determine if there was a difference in stereotype threat between

Table 8

Stereotype Threat Means, Standard Deviations (SD), and Sample Sizes (N) for Students Who Passed and Failed the CAHSEE-ELA in 2008-2009

Test and Group	Mean	SD	N
CAHSEE-ELA			
Passed	31.75	3.7	8
Failed	31.50	4.9	16
CAHSEE-M			
Passed	30.70	5.7	11
Failed	32.20	5.1	12

males and females and between African American and Hispanic students, two additional independent sample t-tests were calculated. No statistically significant differences were found between males and females (t=-.17, df=30, p=.87) nor between African Americans and Hispanics (t=.66, df=30, p=.52).

Interview Data

Student interviews followed a structured, 8-question interview schedule (see Appendix F). The purpose of the interview was to obtain a more in-depth view of how students perceived the CAHSEE and the factors contributing to success on the CAHSEE. The following analysis is based on a reading and rereading of the interview transcripts and a compilation of student responses to the structured questions.

Three themes emerged from reading the transcripts. The themes emerged primarily because a majority of students expressed the same or similar opinions. Each theme is presented below.

Theme 1: Some Test Content on the CAHSEE Had Not Been Taught

Thirteen students (out of eighteen interviewed) responded that there were questions and content on the CAHSEE they had never seen before. Specifically, some students responded, "Yea, a lotta things…like fractions and decimals…..like when I went to [school x], I never went to class so I didn't know what to do." Another student responded, "Well, a lot of word problems. I think that my math should/could have done better helping me with the math problems because the math problem(s) is the one I failed by like two points - Just word problems." A third student responded, "Yea, a lotta things, a lotta math stuff." Other students specifically cited "word problems", "fractions," and "decimals" as things they saw on the CAHSEE that they had not seen before in the classroom.

The district provided a remediation course for students who failed the CAHSEE, and 6 students said that the course had helped them. However, 10 students said it had not, and one student was not aware of a district remediation class.

Theme 2: Students Thought They Could Have Been Better Prepared

Fourteen students (out of eighteen) responded there was a class (or classes) they could have taken that they believed would have improved their performance on the CAHSEE. One student responded, "We could have had after school class at night that would have helped us." A second student responded, "Math, especially fractions." A third student responded, "Yeah, I think that umm there was this class….Umm, a

CAHSEE prep [class] I think, umm, if I had taken it before I took [the] CAHSEE, it would have helped [me].” Students also cited “mathematics,” “geometry,” “poems,” and “English” as classes they believed would have helped them on the CAHSEE.

It might be noteworthy that the majority of the students were uneasy with taking the CAHSEE. Typical responses were “I was scared because I thought I was going to fail,” or “I was hecka nervous and scared.” One student responded “I felt like I could do it. I felt I could pass ‘cause I studied and actually went over the work.” A fourth student responded, “ The first time [prior to taking the CAHSDEE] I felt like I was not in good hands ‘cause I didn’t know what I was doing, ‘cause I never went to class.” As a sidenote, all students responded that they either had “nothing,” a “powerbar,” “cereal,” “crackers,” and/or “juice” prior to taking the CAHSEE the second time.

Theme 3: Hearing Positive Comments About My Race or Gender Prior to Taking the CAHSEE Would Have Improved My Performance

According to Rydell (2009), an effective treatment for mitigating a possible stereotype threat is to share positive comments about the group’s race or gender with the group prior to taking the test. Twelve students (out of eighteen) responded that hearing positive comments about African-Americans or about Hispanic/Latinos prior to taking the CAHSEE would have (they believed) improved their performance. Some student quotes were: “Yea, because usually African-Americans are doubted in a lot high schools. And a lot of high schools with our race and ethnic groups probably does the worse. But it [hearing positive comments about my race prior to taking the CAHSEE] probably would’ve helped.” Another quote is “Yea, I think. I mean maybe it would have made me try harder.” A third student response was, “Yea, I feel like I would be like those African American women [who] succeed.”

Fourteen students responded that hearing positive comments about their gender prior to taking the CAHSEE a second time would not have improved their performance; three students did say that it would have been helpful. When students were asked to explain why they thought hearing positive comments about their gender prior to taking the CAHSEE their second time would have improved their performance, the students said "because it would give me more confidence, " or they said "if I knew that someone in my race did it, then I can do it." The three students who responded that hearing positive comments about their gender prior to taking the CAHSEE a second time would have improved their performance were girls. When asked why they thought that hearing positive comments about their gender prior to taking the CAHSEE a second time would improve their performance, the girls said "because if other women did it, then I could do it," or "just knowing that women can do well on the test would give me more confidence."

CHAPTER FIVE

SUMMARY, LIMITATIONS, DISCUSSION, AND IMPLICATIONS

This chapter is presented in four sections. The first section presents an overview of the study, including the major findings of the study. The second section outlines a number of limitations of the study. A discussion of the findings as they relate to the research literature is presented in the third section. The chapter concludes with implications of this study for research and for practice.

Summary of the Study

California, along with twenty-five other states, has deemed it necessary that high school students demonstrate a basic level of knowledge as a requirement for graduation. It is no longer adequate for graduation that a student successfully completes twelve years of school, nor is it adequate for graduation that students meet rigorous University of California requirements only. Beginning with the class of 2006 and beyond, the California Department of Education requires that any student who wishes to graduate from a public, California high school must pass the California high School Exit Exam (CAHSEE), a criterion-referenced English Language Arts and Mathematics test.

Since fall 2009, 475,464 students have taken the CAHSEE, and 385,141 students have passed the ELA test while 383,814 students have passed the mathematics test. African Americans and Hispanic/Latinos continue to be overrepresented among those students who either fail the CAHSEE, or among those students who have yet to pass the CAHSEE. Since 2009, only 23,586 (71%) of African Americans have passed the CAHSEE ELA, and only 21,809 (67%) African Americans have passed the CAHSEE Math. Only 171, 403 (74%) Hispanic/Latinos have passed the CAHSEE Math and only

170,766 (73%) Hispanic/Latinos have passed the CAHSEE ELA. In comparison, since fall 2009, 39,490 (95%) of Asians have passed the CAHSEE Math, and 37,838 (91%) of Asians have passed the CAHSEE ELA. Likewise, since fall 2009 118,824 (91%) Whites have passed the CAHSEE Math and 120,191 (91%) of Whites have passed the CAHSEE ELA.

Many explanations have been offered to explain the disparity in the passing rates among the ethnic groups. One explanation is that Asian and White students are better prepared for the CAHSEE. They tend to take more college prep courses prior to taking the CAHSEE. Another obvious explanation for the disparity is socioeconomics. Regardless of the reasons for the disparity, school districts throughout California are tasked with preparing all students to –pass the CAHSEE.

To better prepare African Americans and Hispanic/Latinos who have yet to pass the CAHSEE, educators and all other concerned parties must first attempt to understand factors that contribute to their success on the CAHSEE. The current study identified and analyzed five factors that contributed to success on the CAHSEE for these students.

Purpose of the Study

The purpose of the current study was to investigate five factors (SES, prior test performance, opportunity to learn, diet quality, and stereotype threat) that potentially influenced success on the CAHSEE for African Americans and Hispanic/Latinos who did not pass the CAHSEE in the eleventh grade, after failing it on the first administration. Specifically, the current study investigated if there were a correlation between the five factors and success on the CAHSEE. And, if there is a significant relationship between

success on the CAHSEE and one of these five factors, can they predict performance on the CAHSEE.

Research Questions

1. Are there differences in socioeconomic status between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?

2. Are there differences in prior test performance between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?

3. Are there differences in the diet quality between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?

4. Are there differences in opportunity to learn between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?

5. Are there differences in stereotype threat between students who passed the CAHSEE in the 11th grade and those who failed the CAHSEE on their two retakes as 11th-grade students?

Methodology

This study used an ex post facto design to investigate the influence of the five factors on the performance of African Americans and Hispanic/Latino students. Two 11th-grade comparison groups were formed from a sample of students identified by the school district as having failed the CAHSEE as 10th-grade students. One group was composed of students who passed the CAHSEE in the 11th grade on their first or second retake, and the second group was composed of students who failed the CAHSEE on both retakes in the 11th grade. The researcher collected SES, prior test performance, courses taken (opportunity to learn), and CAHSEE data for each student from the school district. The researcher also administered a diet quality instrument and a perceived discrimination instrument to measure diet quality and stereotype threat when the students were 12th-graders. Follow-up interviews were conducted with students completing the surveys and who agreed to participate in the interview.

In English/language arts (ELA), 206 students failed the English section of the CAHSEE as 10th-grade students. As 11th-grade students, 82 (40%) passed and 124 (60%) failed in two retake attempts. In math, 130 failed the math section of the CAHSEE as 10th-grade students. As 11th-grade students, 54 (41.5%) passed and 76 (58.5%) failed in two retake attempts. Some students failed both sections of the CAHSEE, and some failed one or the other test.

The sample for this study was taken from these groups. There were 24 students in the ELA sample and 23 students in the math sample. Because 15 students failed both, a total of 32 students participated in the study. In ELA, 8 passed and 16 failed on their two

retakes as 11th-grade students; in math, 11 passed and 12 failed in their two retakes as 11th-grade students.

Major Findings

There were four major findings from this study:

1. Even though they did not pass the CAHSEE as 10th-grade students, students who passed the CAHSEE as 11th-grade students had higher 10th-grade CAHSEE scores on both the CAHSEE-ELA and CAHSEE-M than students who did not pass the CAHSEE as 11th-grade students.
2. Students who passed the CAHSEE as 11th-grade students had higher 10th-grade CST scores in English and math than students who did not pass the CAHSEE as 11th-grade students.
3. Students who passed the CAHSEE as 11th-grade students were enrolled in more rigorous English courses their first semester as 11th-grade students, although their grades were not appreciably better than those that did not pass as 11-grade students. In math, both those that passed and those that did not pass took similar math courses, but the grades of those that passed the CAHSEE as 11th-grade students were better than those that did not pass as 11th-grade students.
4. No differences were found between those who passed the CAHSEE as 11th-grade students and those who did not in socioeconomic status, diet, or stereotype threat.

Limitations

This study had a number of limitations. First, it was an ex post facto study, and as such, the results were only correlational. It is not possible to attribute causality to any of the factors found to be related to CAHSEE performance. Second, the convenience sample was small (N = 32), and the interview subsample even smaller (n = 18). A larger study would have been desirable. In addition, the students were all from a single midsize high school district in northern California. Because the participants were all students who had failed the CAHSEE on their first attempt, the results generalize only to similar types of students. As a result of these limitations, the results of this study are suggestive only and additional research would be needed to confirm any of the findings of this study.

Discussion of Findings

At the present time there has been little research on factors that contribute to the low performance of African American and Hispanic/Latino students on the CAHSEE. The significance of the current study was to provide more research and insight into the low performance of African-Americans and Hispanic/Latinos on the CAHSEE. Because it is important that California better understand why African-Americans and Hispanic/Latinos consistently underperform on the CAHSEE (Becker, Wise, & Watters, 2008; Center on Education Policy (2003); California Department of Education (2006), the current study identified and described in more detail the influence five factors had on the low CAHSEE performance of African Americans and Hispanic/Latinos.

Past research has shown socioeconomic status (SES) to be a moderate predictor of success on standardized exams like the CAHSEE (Stockton & Thomas, 1999). The current study could not address this issue as virtually all of the students in the study's

sample were identified as being economically disadvantaged. This fact alone, however, suggests the negative influence of low socioeconomic status on the performance of students.

This study found a moderate correlation between performance on the CST-ELA and the CAHSEE ELA, but found no significance between the CST-math test and the CAHSEE-M. But both correlations were computed on small, homogenous, and are therefore suspect. Differences in CST performance were found in favor of the students who passed the CAHSEE as 11-grade students, with those passing having higher CST scores.

This finding is consistent with other similar studies. Pierce (2005) found a moderate relationship between 7th-grade CST math performance and the CAHSEE-M and Mengesha (2007) found strong correlations between prior math test performance and the CAHSEE-M. These findings are important because if students who perform well on prior standardized exams like the CST are the same students who perform well on the CAHSEE, then districts can use that information to identify students at risk of not passing the CAHSEE and to prepare them better for the CAHSEE. It is likely that the training and thinking necessary to pass these earlier tests is also the training or thinking necessary to pass the CAHSEE.

This study found no significance between overall diet quality and whether or not students passed the CAHSEE in the 11th grade. Although no significance was found between diet quality and the students' CAHSEE performance, it is still possible that diet quality is a factor in cognitive performance. Florence, Asbridge and Veugelers (2008) found an association between students' diet and their academic performance. And

Dugdale, as early as 1977, found that children with poor nutrition performed lower in school standardized exams than children without poor nutrition. The fact that twenty-seven of thirty-two students in the current study were economically disadvantaged may explain the no significance finding. It is possible, as the interviews hinted at, that the students in this sample all had relatively similar diets.

Ensuring that all students are adequately prepared to succeed on the CAHSEE is paramount for the state of California. In order to make things equitable, the state must provide equal educational opportunities for all students. But according to the current study, this may not be happening for African-American and Hispanic/Latino students. Instead, African-American and Hispanic/Latino students are underrepresented in courses that both the CAHSEE-Math and the CAHSEE ELA were modeled after.

Shriberg (2006) found that at-risk students in a Massachusetts high school were also underrepresented in courses predictive of higher performance on the Massachusetts Comprehensive Assessment System. Not being given the same opportunity to learn as majority students seems to be a recurring theme for minority students. A possible reason for this inequity is an early programming of minority students into below-grade-level courses. Zau and Betts (2008) found that student performance data as early as the fourth grade could predict student success on the CAHSEE almost as accurately as 9^{th}-grade student performance data. If minority students are tracked into below-grade-level courses in the elementary grades, the result is that by middle and high school, these students are not being exposed to courses that correlate with CAHSEE success. A possible remedy is to target at-risk students in the elementary grades and begin necessary interventions in those grades.

Can a negative perception of one's race or one's gender influence one's performance on a test? According to Ryan and Ryan (2005), Aronson and Steele (1996), and Rydell (2008), a negative perception of one's race or gender can influence one's performance on a test. Ryan and Ryan found that a negative stereotype threat (negative perceptions about one's race or gender) creates a situational pressure that depresses the performance of the targeted group. Rydell's 2008 experiment of female undergraduates confirmed Ryan and Ryan's finding that a negative stereotype threat can depress the performance of the targeted group.

The current study found no significance difference between students passing and not passing the CAHSEE, but the student interviews revealed that a majority of students believed that if they had heard positive comments about their race or gender prior to taking the CAHSEE, then they would have performed better. The students' comments are consistent with what Rydell believes is a method for mitigating stereotype threat. According to Rydell, by providing female undergraduate students with positive comments about women prior to taking a mathematics assessment, they performed better than female undergraduates who were provided negative comments about women prior to taking the same mathematics assessment. Not only did the females who were provided positive comments about women perform better than the females who were given negative comments about women, but also they demonstrated greater performance on working memory tasks. Students in the current study did report some stereotype threat; mitigating this stereotype threat on the CAHSEE should be a goal for all districts.

Implications for Research

Bronfenbrenner's (1979) theory of human ecology provided the theoretical framework for this study. According to the human ecology theory, differences in an individual's knowledge, development, and competencies are often attributed to or explained by the structures in which they live. These structures operate within the human ecology system. This system is complex, and understanding the CAHSEE achievement gap among African Americans and Hispanic/Latinos is equally complex. The human ecology theory argues that there is more than one influential agent involved. Therefore, understanding the ethnic underachievement on the CAHSEE requires examining the collective influence of a number of variables like those investigated in this study. Only then will researchers be able to sort out the main factors affecting performance on the CAHSEE.

Presently, there is little research that collectively studies the influence or impact of major variables on CAHSEE performance. Although this study examined five factors, it did so individually and not collectively. This was primarily due to the small sample sizes. Larger studies with more representative samples similar to the present study should be completed where multivariate statistical procedures might help to disentangle the influence of different factors influencing performance on the CAHSEE. The ultimate goal of such research should be a predictive model or a blueprint for passing the CAHSEE by all students.

The effect of stereotype threat on the CAHSEE performance of African-Americans and Hispanic/Latinos should be further explored. Research along the lines of

Aronson and Steele's (1996) experiment should be considered, especially with the kind of sample used in this study.

The relationship between test performance on the CST tests and CAHSEE performance should be further explored. California's public school academic curriculum is aligned with its standards. Therefore, it is reasonable to expect that if a student is proficient in math according to state standards, that the same student should be proficient in math on the CAHSEE.

Opportunity to learn continues to be a controversial topic in education (Pierce, 2006). America's schools are not equal, especially for minorities. This fact was echoed in the current study; only one-third of the students in the study took classes that correlate with CAHSEE success prior to taking the CAHSEE. This inequity has implications for student achievement especially on standardized assessments (NAEP, 2003, p.13). Districts should continue to make sure all students are exposed to the same curriculum, or exposed to a curriculum that is synonymous with success on criterion-referenced assessments like the CAHSEE.

Implications for Practice

The findings of this study suggest that it may be profitable to create a support system for African Americans and Hispanic/Latinos who have failed the CAHSEE. In particular, this support system should include positive role models for African Americans and Hispanic/Latinos.

The current study found that many students believed that had they heard positive things about their race prior to taking the CAHSEE they would have performed better. When asked why they felt hearing positive things about their race would help their

performance, many students responded that “it would have made me believe that if they did it, then I could do it,” or they responded that “it would have just motivated me to do better.” Role models play a key role in this society, and providing students who have problems passing the CAHSEE with a role model is useful and possibly rewarding for the student.

An Academic Coaching program, especially for minorities who encounter problems with passing the CAHSEE, might also be of assistance. The current study found that students thought that there were classes that could have improved their performance on the CAHSEE. Academic coaches tend to work ‘outside the box’, and they could perhaps work outside the structure of the classroom. With an academic coaching program in place, a coach may be able to respond specifically and individually to the concerns of students. And an academic coach may be well-positioned to motivate and focus these students to do well on the CAHSEE.

Summary

African-American and Hispanic/Latino students’ prior achievement performance and opportunity to learn variables were found to distinguish among those who passed the CAHSEE as 11th-grade students and those who did not pass the CAHSEE as 11th-grade students. Future research should explore these findings to see if they hold with larger samples.

References

Ahuja, Y. (2004-05). Bronfenbrenner Ecological Theory. *Montessori Academy*. Retrieved from http://www.mymontessoriacademy.com/newsletters/wedsitebronfenbrennerecologicaltheory.pdf.

Amrein, A.L. & Berliner, D.C., (2003). The effects of high stakes testing on student motivation and learning. *Educational Leadership, 60*, 32-38.

Ananda, S. & Rabinowitz, S. (2000). The High Stakes of HIGH-STAKES Testing (Policy Brief). San Francisco, CA: WestEd.

Barron, R. & Sanchez, F.S. (2007) Fulfilling the Commitment: Excellence for All Students. Anaheim, CA. retrieved from Http://www.acsa.org/UrbanEducation/Commitment.

Becker, D.E., Wise, L.L., & Watters, C. (Eds.). (2008). *Independent evaluation of the California high school exit examination (CAHSEE): 2008 evaluation report*. Alexandria, VA: Human Resources Research Organization.

Bottoms, G.(2002). Recent graduates call for higher standards in academic and career/technical classes. Atlanta, GA: *Southern Regional Education Board.*

Bridgeland, J.M.; Dilulio, J.J. & Morison, K.B. (2006). The silent epidemic: Perspectives of high school dropouts. (A report by Civic Enterprises in association with Peter D. Hart Research Associates for the Bill & Melinda Gates foundation). Retrieved from http://www.civicenterprises.net/pdfs/thesilentepidemic3-06.pdf.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments in nature and design*. Cambridge, MA: Harvard University Press.

Byrd, R.D.- West Virginia, Senate (1997). A failure to produce better students. Congressional Record; June, 1997: S5393 Congressional Record.

California Department of Education, California High School Exit Exam: Program Overview. Retrieved from http://www.cde.ca.gov/ta/tg/hs/overview.asp.

Campaign for College Opportunity (2007). Return on Investment: Educational Choices and Demographic Change in California's Future. *A Landmark study by UC Berkeley Researchers.*

Canada Statistics (2005). Canadian community health survey: obesity among children and adults. Retrieved from http:/statcan.ca/Daily/English/050706/d050706a.htm.

Center on Education Policy. (2002). *Action Summary for State and National Leaders*. Based on information collected from the Office of Superintendent of Public Instruction website at http://www.k12wa.us/and.

Center on Education Policy (2004). *State high school exit exams: A maturing reform.* Washington D.C. Retrieved from http://www.ctredpol.org-highschoolexit-exit examAug2004-ExitExam2004.pdf.

Center on Education Policy (2005). *State high school exit exams: States try harder, but gaps persist.* Washington D.C.

Clark, R.E., & Estes, F.(2002). Turning research into results: A guide to selecting the right performance solutions. Atlanta, GA: CEP Press.

Crosnoe, R., & Huston, A.C. (2007). Socioeconomic status, schooling, and the developmental trajectories of adolescents. *Developmental Psychology, 43*(5), 1097-1110.

Davis-Kean, P.E. (2005).The influence of parent education and family income on child achievement: The indirect role of parental expectations and th4 home environment. *Journal of Family Psychology*, *19*(2), 294-304.

De La Cuesta, K. J. (2008). Raising student achievement on the California standards test and California high school exit exam at the Phoenix Arts Charter School. *Dissertation Abstracts International Section A: Humanities & Social Sciences*; 69(6A): 2059.

Dugdale, Alan E., (1977). Factors influencing school achievement of children from low socioeconomic groups in Malaysia. *International Journal of Psychology*, *12*, 39-50.

Education Trust-West, 'California at a Crossroads: Embracing the CAHSEE and Moving Forward' www.2edtrust.org/EdTrust, December, 2006.

Fannin, R.A. (1987). Family Wellness: An Ecological Perspective. Paper presented at the annual National Symposium on Building Family Strengths, Lincoln, NE., May 13-15, 1987.

Florence, M. D., Asbridge, M, & Veugelers, P.J. (2008). Diet quality and academic performance. *Journal of School Health, 78*, 209-215.

Garcia. P.A., & Gopal, M., (2003). The relationship to achievement on the California high school exit exam for language minority students. *NABE Journal of Research and Practice,1, 126-140.*

Gerber, M. (2001). The comprehensive approach to diet: A critical review. *Journal of Nutrition Supplement, 131*, 3051s-3055s.

Haines, K.S., Siega-Riz AM, et al. (2003). The diet quality index-international (DQI-I) provides an effective tool for cross national comparison of diet quality as illustrated by China and the United States. *Journal of Nutrition, 133*, 3476-3484.

Jacob, B.A. & Dee, T.S. (2009). *Do High School Exit Exams Influence Educational Attainment or Labor Market Performance?* Retrieved from http://closup.umich.edu.

Kant, AK. (1996). Indexes of overall diet quality: a review. *Journal of American Diet Association, 96*, 785-791.

Krathwohl, D.R. (2009). Methods of educational and social science research (3rd ed.). Long Grove, ILL.: Waveland Press.

Malecki, C.K., & Demaray, M.K. (2006). Social support as a buffer in the relationship between socioeconomic status and academic performance. *School Psychology Quarterly, 21*(4), 375-395.

Martin, D. E. (2003). Stereotype threat, cognitive aptitude measures, and social identity. Washington, D.C., Unpublished dissertation, Howard University.

Mengesha, A. S. (2007). A correlational study between the California high school exit exam and the Kaplan district test for algebra I and geometry for Lynwood unified school district for the years 2005 and 2006. Ann Arbor, MI.: UMI Microform 3268872.

National Center for Education Statistics (2005). NAEP data. Retrieved from Http://nces.ed.gov/nationsreportcard/getdata.esp.

Nichols, J.D. (2003). Prediction indicators for students failing the state of Indiana high school graduation exam. *Preventing School Failure, 47*(3), 112-120.

No Child Left Behind Act (2001). 107th Congress, 110th Congress, Rec. 1425, 115 Stat. (2002).

Oakes, J.; Gamoran, A. & Page, R.N. (1992). Curriculum differentiation: Opportunities, outcomes, and meaning (pp.570-608). In P.W. Jackson (Ed.). *Handbook of research on curriculum.* New York: Macmillan Publishing Company.

Pierce, C. A. (2005). An examination of student performance on California standards-based tests in mathematics as indicators for future performance on the mathematics portion of the California high school exit exam. Ann Arbor, MI.: UMI Dissertation Services.

Popham, W.J. (2001). *The truth about testing: An educator's call to action*. Alexandria, VA: Association for Supervision and Curriculum Development.

Ryan, K. E., & Ryan, A. M. (2005). Psychological processes underlying stereotype threat and standardized math test performance. *Educational Psychologist*, *40*(1), 53-63.

Rydell, R. J. (2009). Psyched out by stereotypes: IU research suggests thinking about the positive. Bloomington, Ind. *Indiana University Newsroom*. Retrieved from Http://newsinfo.iu.edu/news/page/normal/10760.html.

Sackett, P.R., Kuncel, N.R., Arneson, J.J., Cooper, S.R. et.al. (2009). Does socioeconomic status explain the relationship between admissions tests and post secondary academic performance? *Psychological Bulletin*, *135*(1), 1-22.

Sears, K. G. (2007). An ambiguous world: understanding the attributions and academic performances of African-American and Hispanic/Latino-American college students. *Dissertation Abstracts International: The Sciences & Engineering*, 68(9-B).

Seidman, Irving. (2006). *Interviewing as qualitative research* (3rd ed.). New York, NY: Teachers College Press.

Shriberg, D. (2006). The role of demographics and opportunities to learn in predicting performance on a high-stakes test. *Journal of Applied School Psychology*, *23*(1), 59-75.

Spencer, S.J., Steele, C.M., & Quinn, D.M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology*, *35*, 4-28.

Swanson, C.B. (2005). *Who Graduates In California?* Urban Institute Education Policy Center Policy Bulletin. Retrieved at http://www.urban.org/uploadedPDF/900794_who_graduates_CA.pdf

Taras, H. (2005) Physical activity and student performance at school. *Journal of School Health, 75*, 214-218.

Taylor, D.M., Wright, S.C., & Porter, L.E. (1994). Dimensions of perceived discrimination: The personal/group discrimination discrepancy (pp. 323-355. In M. P. Zanna & J.M. Olson (Eds.), *The Ontario symposium: The psychology of prejudice.* Hillsdale, NJ; Erlbaum.

Thayer, D.L. (2003) *The California high school exit exam: A blueprint for success*. ERIC: ED482511, Unpublished Master's Thesis.

Thomas, J., & Stockton, C. (2003) Socioeconomic status, race, gender and retention: impact on student achievement. Retrieved from Http://*www.usca.edu/essays/vol72003/stockton.pdf*.

Tur, Joseph A., Romaguera, Dora, & Pons, Antoni (2005). The Diet Quality Index-International (DQI-I): is it a useful tool to evaluate the quality of the Mediterranean diet? *British Journal of Nutrition, 93*, 369-376.

Walsh, M., Hickey, C., & Duffy, J. (1999). Influence of item content and stereotype situation on gender differences in mathematical problem solving. *Sex Roles, 41*(3/4), 219-240.

Warren, J.R. & Edwards, M.R. (2005). High school exit examinations and high school completion: Evidence from the early 1990s. *Educational Evaluation and Policy Analysis, 27*(1), 53-74.

Verkuyten, M. (1998). Perceived discrimination and self-esteem among ethnic minority adolescents. *Journal of Social Psychology, 138*(4), 479-494.

Viadero, D. (2009). Scholars Probe Diverse Effects of Exit Exams. *Education Week, 28*(30), 1-11.

WestED (2004). California's Graduation Rate: The Hidden Crisis. San Francisco, CA.

Zau, A. C. & Betts, J. R. (2008). *Predicting success, preventing failure: An investigation of the California high school exit exam*. San Francisco, CA: Public Policy Institute of California.

Appendix A

Superintendent's Letter

Dear Superintendent

I am conducting a study on factors that influence success on the California High School Exit Exam (CAHSEE). This research is toward the completion of my doctoral studies in the School of Education at the University of San Francisco. I am asking your consent for this study to be conducted. Your permission to allow me to conduct this study will contribute to CAHSEE research. The results of this study will benefit your district and other districts statewide.

Your signature below indicates that you give me permission to conduct my research using student performance and demographic data, and the access to students to conduct qualitative interviews.

Sincerely,

Zelda Brown, Doctoral Candidate

_____

Signature Date

Appendix B

Student Informed Consent

Factors contributing to Low Performance Among African Americans and Hispanics on the California High School Exit Exam (CAHSEE)

Purpose and Background

Zelda Brown, a doctoral student in the School of Education at the University of San Francisco, is conducting a study that examines five factors that influence success on the California High School Exit Exam (CAHSEE) for African American and Hispanic/Latino students who failed their first attempt at the CAHSEE but passed or failed their second attempt at the CAHSEE. African American and Hispanic/Latino students continue to underperform on the CAHSEE. There is a continued need to examine this underperformance. The researcher is interested in determining if African American and Hispanic/Latino students who passed their second attempt at the CAHSEE differ from African American and Hispanic/Latino students who failed their second attempt at the CAHSEE on five factors (SES, Diet Quality, Opportunity to Learn, Prior Test Performance, and Stereotype Threat).

I am being asked to participant in this study because I am an African American or Hispanic/Latino high school student who failed the first administration of the CAHSEE, but passed or failed the second administration of the CAHSEE.

Procedures

If I agree to be a participant in this study, the following will happen:

1. Some academic and background information about me like ethnicity, STAR test scores, CAHSEE test scores, classes I've taken will be extracted from my school records
2. I will complete a questionnaire administered by a research assistant about my feelings about the CAHSEE.

3. I will complete a survey administered by a research assistant (the DQI-I) about my diet.

4. I will complete a short questionnaire (the Perceived Discrimination Inventory) about my feelings about my race.

5. I will complete the questionnaires and surveys at a high school in the San Mateo Union High School District.

Risks and/or Discomforts

It is possible that some of the questions on the perceived discrimination questionnaire may make me feel uncomfortable, but I am free to decline to answer any questions I do not wish to answer or stop participation at any time.

Participation in research may mean a loss of confidentiality. Study records will be kept as confidential as is possible. No individual identities will be used in any reports or publications resulting from this study. Study information will be coded and kept in secured locations at all times. Only study personnel will have access to the files.

Because the time required for my participation may be up to an hour, I may become tired or bored.

Benefits

There will be no direct benefit to me from participating in this study. The anticipated benefit of this study is to shed light on the underperformance of African Americans and Hispanic/Latinos on the CAHSEE.

Costs/Financial Considerations

There will be no financial costs to me as a result of taking part in this study

Reimbursement/Compensation

There is no reimbursement or compensation for participating in this study.

Questions

I have talked to Ms. Brown or her research assistant about this study and have had my questions answered. If I have further questions about the study, I may call her at 408.849.5575 or I may contact her via email at zeldayb@yahoo.com.

If I have any questions or comments about participation in this study, I should first talk with the researchers. If for some reason I do not wish to do this, I may contact the IRBPHS, which is concerned with protection of volunteers in research projects. I may reach the IRBPHS office by calling (415) 422-6091 and leaving a voicemail message, by e-mailing IRBPHS@usfca.edu, or by writing to the IRBPHS, Department of Psychology, University of San Francisco, 2130 Fulton Street, San Francisco, CA 94117-1080.

Consent

I have been given a copy of the "Research Subject's Bill of Rights" and I have given a copy of this consent form to keep.

PARTICIPATION IN RESEARCH IS VOLUNTARY. I am free to decline to be in this study, or to withdraw from it at any point. My decision as to whether or not to participate in this study will have no influence on my present or future status as a student in the San Mateo Union High School District.

My signature below indicates that I agree to participate in this study.

Subject's Name_____Date_____

Zelda Brown_____Date_____

Appendix C

Parental Consent for Research Participation

Purpose and Background

Zelda Brown, a doctoral student in the School of Education at the University of San Francisco, is conducting a study that examines five factors that influence success on the California High School Exit Exam (CAHSEE) for African American and Hispanic/Latino students who failed their first attempt at the CAHSEE but passed or failed their second attempt at the CAHSEE. African American and Hispanic/Latino students continue to underperform on the CAHSEE. There is a continued need to examine this underperformance. The researcher is interested in determining if African American and Hispanic/Latino students who passed their second attempt at the CAHSEE differ from African American and Hispanic/Latino students who failed their second attempt at the CAHSEE on five factors (SES, Diet Quality, Opportunity to Learn, Prior Test Performance, and Stereotype Threat).

I am being asked to participant in this study because I am an African American or Hispanic/Latino high school student who failed the first administration of the CAHSEE, but passed or failed the second administration of the CAHSEE.

Procedures

If I agree to allow my child to be in this study, the following will happen:

1. Some academic and background information about your child like ethnicity, STAR test scores, CAHSEE test scores, classes I've taken will be extracted from your child's school records.
2. Your child will complete a questionnaire administered by a research assistant about his/her feelings about the CAHSEE.

3. Your child will complete a survey administered by a research assistant (the DQI-I) about his/her diet.

4. Your child will complete a short questionnaire (the Perceived Discrimination Inventory) about his/her feelings about his/her race.

5. Your child will complete the questionnaires and surveys at a high school in the San Mateo Union High School District.

Risks and/or Discomforts

It is possible that some of the questions on the perceived discrimination questionnaire may make your child feel uncomfortable, but your child may feel free to decline to answer any questions he/she does not wish to answer or stop participation at any time.

Participation in research may mean a loss of confidentiality. Study records will be kept as confidential as is possible. No individual identities will be used in any reports or publications resulting from this study. Study information will be coded and kept in secured locations at all times. Only study personnel will have access to the files.

Benefits

There will be no direct benefit to me or to my child from participating in this study. The anticipated benefit of this study is to shed light on the underperformance of African Americans and Hispanic/Latinos on the CAHSEE.

Costs/Financial Considerations

There will be no financial costs to me or to my child as a result of taking part in this study.

Reimbursement/Compensation

Neither my child nor I will be reimbursed for participation in this study.

Questions

I have talked to Ms. Brown or her research assistant about this study and have had my questions answered. If I have further questions about the study, I may call her at 408.849.5575 or I may contact her via email at zeldayb@yahoo.com.

If I have any questions or comments about participation in this study, I should first talk with the researchers. If for some reason I do not wish to do this, I may contact the IRBPHS, which is concerned with protection of volunteers in research projects. I may reach the IRBPHS office by calling (415) 422-6091 and leaving a voicemail message, by e-mailing IRBPHS@usfca.edu, or by writing to the IRBPHS, Department of Counseling Psychology, Education Building, University of San Francisco, 2130 Fulton Street, San Francisco, CA 94117-1080.

Consent

I have been given a copy of the "Research Subject's Bill of Rights" and I have given a copy of this consent form to keep.

PARTICIPATION IN RESEARCH IS VOLUNTARY. I am free to decline to have my child be in this study, or to withdraw my child from it at any point. My decision as to whether or not to have my child participate in this study will have no influence on my child's present or future status as a student in the San Mateo Union High School District.

My signature below indicates that I agree to allow my child to participate in this study.

Signature of Subject's Parent_____ Date_____

Appendix D

Diet Quality Survey

Diet Quality Survey

Directions: Please provide the interviewer with the foods from the five basic food groups that you consume and how often you consume them. The interviewer will enter your responses. You may refer to the food group diagram to assist you with your responses.

Servings per week *Pts.*

FOOD GROUP	**1**	**2**	**3**	**4**	
Fruits and vegetables					*Variety*
					adequacy
					overall
Meat and Protein					*Variety*
					adequacy
					overall
Bread and Cereal					*Variety*
					adequacy
					overall
Dairy and Milk					*Variety*
					adequacy
					overall
Foods containing fats and sugar					*Variety*

					adequacy
					overall

Appendix E

Perceived Discrimination Survey

Perceived Discrimination Survey

Directions: Answer each question below by circling one number for each question. Please let the interviewer know if you need her to explain any question.

1= Never

2= Sometimes

3= Often

4= Almost Always

Individual Level Items:

1. I have never been misinterpreted based on the color of my skin.	1	2	3	4
2. I have been harassed by authority figures due to my physical appearance.	1	2	3	4
3. I have been in situations where others have unfairly judged my performance.	1	2	3	4
4. My ideas are not valued because of my background.	1	2	3	4
5. I have been called derogatory names due to my race/ethnicity.	1	2	3	4
6. I have been denied access to opportunities because of my skin color.	1	2	3	4
7. I have been socially rejected because of my race/ethnicity.	1	2	3	4

Group Level Items:

1. Members of my racial group are often mistreated.	1	2	3	4
2. Academic institutions deny members of my race/ethnicity academic opportunities.	1	2	3	4
3. Members of my group are viewed as a threat.	1	2	3	4
4. Equal opportunities are available for my racial/ethnic group.	1	2	3	4

5. Members of my racial/ethnic group often experience discrimination.	1	2	3	4
6. My group members' ideas are valued by society as a whole.	1	2	3	4
7. My group members are socially accepted.	1	2	3	4

Appendix F

Student Interview Questions

Student Interview Questions

1. Is there a class you could have taken that you believe would have helped you pass the CAHSEE on your second attempt?

2. Did you see anything on the CAHSEE the first time that you never saw before?

3. Did the district remediation course help you pass the CAHSEE the second time? If not, why do you feel that it didn't assist you?

4. Describe what you ate prior to taking the CAHSEE the first and second time.

5. With what group do you self identify?

6. Describe to me how you felt when you took the CAHSEE.

7. Do you feel that taking the CAHSEE in the presence of the group you self identify with only would have improved your performance? Explain your answer

8. Do you feel that hearing positive things about your gender or your group prior to taking the CAHSEE would have improved your performance?

LIST OF FIGURES

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